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THE UNIVERSITY OF ALBERTA

IMPLICATIONS FOR SCHOOL ADMINISTRATION
OF THE PERSONALITY STRUCTURE OF EDUCATIONAL PERSONNEL

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
OF DOCTOR OF PHILOSOPHY

DIVISION OF EDUCATIONAL ADMINISTRATION

by

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FACULTY OF GRADUATE STUDIES

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "IMPLICATIONS FOR SCHOOL ADMINISTRATION OF THE PERSONALITY STRUCTURE OF EDUCATIONAL PERSONNEL" submitted by Erich Alvin von Fange in partial fulfilment of the requirements for the degree of Doctor of Philosophy.

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ABSTRACT

The Problem and Methods

The problem of the study was to analyze implications to educational administration of patterns of personality as found among education students, teachers, and school administrators. Based on the Myers-Briggs Type Indicator (MBTI) embodying Jung's theory of personality for the predictor measures, the following dimensions of sixteen possible preference-types were linked to other variables: extraversion-introversion (E-I), judgment-perception (J-P), sensation-intuition (S-N), and thinking-feeling (T-F). The study attempted to show preference-type as an important factor of increasing selectivity within the teaching profession (seven hypotheses), and to relate type to vocational choices, expressed teacher satisfaction, rated effectiveness, amount of training, and amount of experience (five hypotheses).

In order to test the twelve hypotheses of the study for the sample of 1,084 education students, teachers, and administrators, the four nominal scores of the MBTI were the predictor measures against which the criterion measures of the study were tested by means of chi-square tests, sign tests, and analysis of variance. Three questionnaires furnished the data for the description of the sample populations, and the criterion measures involved in the study.

Summary of the Findings

Seven hypotheses concerned with selection factors. All sample populations were significantly different from the distribution of types found in the general population. The modal male at all levels was the

ESTJ pattern, while the mode for one-year female students and female teachers - most of whom also had one year of training - was the ESFJ type. In the degree program the mode for females was ENFP. Male administrators tended to possess the extraversion and judgment dimensions, as hypothesized. A large proportion of teachers fell into relatively few preference-types.

Five hypotheses concerned with variables of significance to educational administration. Female students who indicated a teaching preference for elementary, junior, or senior high school levels differed significantly in the distribution of preference-types from one another, and those who preferred grade over subject teaching also differed significantly. English and foreign language majors differed from female students who had not selected a major. Female education majors differed significantly from females majoring in the arts and sciences. Significant differences between preference-types were found among teachers with respect to six aspects of expressed teacher satisfaction as determined by analysis of variance. Female student teachers who possessed the EP and/or NF dimensions of personality were rated more effective than other student teachers. Male teachers with more training were significantly more apt to be rated as more effective in teaching, but no relationship was found between years of teaching experience and rated effectiveness.

Eleven of the twelve hypotheses showed significant relationships, at least in part, with either or both the male and the female samples. This exploratory study offers a basis for the study of teacher and administrator characteristics which makes no assumption that there are characteristics common to all.

TABLE OF CONTENTS

CHAPTER	PAGE
I. DEFINITION OF THE PROBLEM AND ANALYSIS	1
The Problem	1
Definition of Terms	6
A Theory of Teacher and Administrator Selection, Retention, and Promotion	8
Hypotheses	19
II. REVIEW OF THE LITERATURE	21
Studies of Teacher and Administrator Characteristics . .	21
The Personality Theory Underlying the Study	29
The Study in the Context of Theories of Administration .	45
III. INSTRUMENTATION AND METHODOLOGY	52
Instrumentation	52
Recruitment of the Samples	62
IV. DESCRIPTION OF THE SAMPLES	69
V. ANALYSIS OF DATA AND RESULTS: SELECTION FACTORS	88
VI. ANALYSIS OF DATA AND RESULTS: VARIABLES OF SIGNIFICANCE TO ADMINISTRATION	130
VII. INTERPRETATION AND CONCLUSIONS	152
Differences in Selection Factors	152
Differences in Variables of Significance to Administration	159

CHAPTER	PAGE
Implications for the Field of Educational Administration	166
VIII. SUMMARY	170
BIBLIOGRAPHY	182
APPENDIXES	193
Appendix A	194
Appendix B	199

LIST OF TABLES

TABLE	PAGE
I. Conventional Reliabilities and Intercorrelations of the Myers-Briggs Indices for 146 Males	60
II. Percentage of Types for Men and Women Separately for the Total Unselected Population	62
III. Distribution of Sample Populations by Sex	69
IV. Teaching Level Preference of First Year Students	72
V. Choice of Academic Major of First Year Students by Sex . .	73
VI. Choice of Academic Major of Upper Level Students by Sex .	75
VII. Teaching Level Preference of Upper Level Students by Sex .	76
VIII. Age Range of Teachers by Sex	77
IX. Areas of Most Academic Preparation by Sex	78
X. Number of Courses Taken by Teachers for Preparation in Major Teaching Subject	79
XI. Years of University Training by Sex	80
XII. Teacher Preference by Sex for Grade Level Taught	81
XIII. Teaching Credentials by Sex	82
XIV. Distribution of Superintendents by Province	85
XV. Distribution of Preference-Types for All Male Samples . .	91
XVI. Distribution of Preference-Types for All Female Samples .	92
XVII. Percentage Distribution of Type Dimensions and Modalities by Sex	93
XVIII. Education Samples Compared with General Population: Males	94

TABLE	PAGE
XIX. Education Samples Compared with the General Population:	
Females	99
XX. Differences among Groups of Education Students	103
XXI. Teachers in Service Sample Compared with the General	
Population by Sex	108
XXII. Administrator Sample Populations Compared with the	
General Population	111
XXIII. Teachers Compared with Education Students by Sex	114
XXIV. Comparisons between Male Teachers and Educational	
Administrators	118
XXV. Comparison of General Population and All Levels of	
Female Sample Populations	121
XXVI. Frequency Rank of Preference-Types for Each Female	
Sample Population	123
XXVII. Comparison of General Population and All Levels of	
Male Sample Populations	125
XXVIII. Frequency Rank of Each Preference-Type for Each Male	
Sample Population	128
XXIX. Comparison of Male Degree Student Vocational Choice	
Differences	131
XXX. Comparison of Female Vocational Choice Differences	134
XXXI. Comparison of Male Preference-Types and Degree of	
Satisfaction Indicated	139

TABLE

XXXII.	Comparison of Female Preference-Types and Degree of Satisfaction Indicated	143
XXXIII.	Comparison of Teacher Preference-Types and Rated Effectiveness	145
XXXIV.	Comparison of Student Teacher Preference-Types and Rated Effectiveness	146
XXXV.	Comparison of Years of Training and Rated Effectiveness .	150
XXXVI.	Comparison of Years of Teaching Experience and Rated Effectiveness	151

CHAPTER I

DEFINITION OF THE PROBLEM AND ANALYSIS

The problem of this study is to analyze certain implications to educational administration of measurable patterns of personality as found among education students, teachers, and school administrators. Basic behavior determinants or criteria which purport to influence or organize behavior, examined in the light of an integrated theory of personality, form the basis of a study of characteristics of selected samples of education students, teachers, and educational administrators. The attempt is to see whether these variables, which purport to be of fundamental importance, are related to variables which have significance for administration.

Teacher and administrator recruitment and professional training programs have been handicapped by a lack of any valid basis for selection, and at present reliance has been placed upon such criteria and characteristics as intelligence, age, experience, academic achievement, and professed interest. Recruitment at present is largely self-recruitment, which may or may not be sound practice. Existing research on this problem is largely from outside of Canada, which may not apply locally.

As one important implication to educational administration, this study tests a theory that persons with certain personality patterns tend to enter the teaching profession, while persons of other personality types do not, that fewer types are characteristic of

teachers rated as effective, and that only a relatively limited number of teacher personality types tend to become administrators. Thus, the study will attempt to show personality type as an important factor of increasing selectivity within the teaching profession. Further, the study may offer clues to success in the teaching profession and in educational administration on the basis of this theory of personality by relating personality type to selection factors, dropouts, teacher satisfaction, teacher evaluation, and interpersonal relationships.

The study is designed to fit into a theory of leadership which bridges a trait theory and a situationist theory of leadership. By means of the personality dimensions comprising the theory in this study, situations may be analyzed as best suited to one or more personality patterns. At the same time, individuals may be tested to determine whether or not they are likely to fit the requirements of a given situation. This approach to the problem is urged by Bass.¹

Moreover, the theory contains constructs which may apply in a similar fashion to the theory of role expectations versus role behavior, and to the leadership dimensions of initiating structure and consideration. These dimensions are examined in the light of the individual personality, i.e., the characteristic mode of behavior of the person in the light of the needs of the situation at hand.

Despite the current popularity of situationist theory,²

¹Bernard M. Bass, Leadership, Psychology, and Organizational Behavior. New York: Harper & Brothers, 1960, p. 21.

²Jack Culbertson and others, Administrative Relationships. Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1960.

personality characteristics are commonly recognized in the literature as important, though elusive, factors in teacher and administrator selection and behavior. Investigations of traits or types thus far have been disappointing, leading many authorities to abandon this approach. However, it must be noted that the research thus far has been conducted largely with undefined and overlapping traits, with little or no theory involved, and with instruments of doubtful reliability and validity. The assumption that there must be one ideal type or pattern has not proved to be a rewarding approach.

These difficulties do not necessarily negate the importance of certain traits as important to selection. The very fact that selection is recognized as a serious problem appears to point up the importance of personality variables, for the focus here is not on the situation. Further investigation thus is warranted and is strongly encouraged in the literature.

There is no known theory of administration nor of personality which has been applied successfully in the past to problems of selection in the teaching profession. In order to investigate this problem, use will be made of an unpublished personality instrument by special arrangement with Educational Testing Service, Princeton, New Jersey. This instrument purports to classify persons into meaningful preference-types, and this type classification may be related to other variables of significance to educational administration. Following the gathering of data, statistical analysis will be made of the results to test certain hypotheses which were set forth a priori. From this analysis,

conclusions will be drawn.

Preliminary research with the Myers-Briggs Type Indicator suggests the possibility of applying a personality theory to problems of selection in the teaching profession. In some cases where job roles have been carefully defined in our society, the Myers-Briggs instrument shows tentatively that certain types are strongly modal within such positions. This study, then, is an attempt to apply the personality theory underlying this instrument to teacher and administrator selection and to related problems.

The hypotheses of this study are derived by logical deduction based upon previous research with the Myers-Briggs Type Indicator, the Allport-Vernon-Lindzey Scale of Values, the literature on teacher and administrator selection and characteristics, the literature on vocational theory, and upon observation and experience.

The study rests upon certain assumptions. It is assumed that responses to the questionnaires and to the test instrument are factually correct and are given in good faith. Furthermore, the theoretical basis of the test instrument is accepted by the researcher on an assumption level, since it would be far beyond the scope of this study to attempt to prove the theory involved, if, indeed, this would be possible in any case. Existing evidence, however, will be cited as tentative and incomplete support for the theory involved in the study.

The field of educational administration has in recent years changed from one based on personal experience and observation to one oriented toward more and more sophisticated research, and tending to be

based on a theoretical structure. Research in administration, and in educational administration in particular, has grown to vast proportions. Since the field is of necessity eclectic, both efforts in research and attempts to devise theoretical bases operate under severe handicaps. Without minimizing recent contributions to new insights into the field of educational administration, it is reasonable to say that progress has been slow in this relatively new field.

Insights have been acquired in such concepts as leadership, morale, productivity, satisfaction, initiating structure, consideration factors, need structure, roles, status, situation, expectations, human relations, group dynamics, program development, conformity, individuality, cooperation, and the like, but much remains elusive and ill-defined. There can be no doubt but that personality factors play a primary role in all of the above, but little thus far has been achieved in relating personality variables to administrative behavior in education. Personality instruments, though they frequently offer tantalizing vistas to the researcher, are notoriously low in validity and reliability. At the same time, the study of human personality, as related to educational administration, continues to be a legitimate area for further research in the attempt to contribute toward a comprehensive theory of administration.

Recent findings - discussed in the next chapter - furnish cues to an approach to the study of personality which heretofore has not been explored to any degree.

I. DEFINITION OF TERMS

Theory in this study refers specifically to Jung's¹ theory of personality together with possible correlates with this theory from the literature. Jung's observations, offered to relate phenomena concerned with human personality, serve as the basis for the hypotheses of this study. The use of the word theory in this study does not state or imply an attempt toward psychological explanation, but the goal of the study of this theory is "its own destruction by making better theory possible."²

Personality is defined by the particular concepts which are a part of the theory of personality employed in this study. It consists of the descriptive terms which are used to describe the individual being studied according to the dimensions which occupy a central position within this theory.³

Preference-type or type in this study refers to any one of the theoretical personality structure patterns as measured by the Myers-Briggs Type Indicator. The term 'preference-type' emphasizes that these patterns are not stereotypes, but that broad individual differences⁴

¹Carl Gustav Jung, Psychological Types. Translated by H. G. Baynes. London: Routledge & Kegan Paul, Ltd., 1923.

²Donald Olding Hebb, A Textbook of Psychology. Philadelphia: W. B. Saunders Company, 1958, p. 260.

³Calvin S. Hall and Gardner Lindzey, Theories of Personality. New York: John Wiley & Sons, Inc., 1957, pp. 183-184.

⁴Ira Progoff, Jung's Psychology and Its Social Meaning. New York: Grove Press, 1953, p. 157.

exist within each type.

Value system or value structure is used in the sense of one of the fixed combinations of underlying determinants which purport to influence or organize behavior, as measured by the Myers-Briggs Type Indicator.

Attitude refers to any of the following elements of the Jungian theory of personality: extraversion-introversion, judgment-perception.

Function refers to any of the following elements of the Jungian theory of personality: sensation-intuition, thinking-feeling.

Extraversion vs. Introversion (E-I). Extraversion refers to an attitude in which one's main points of reference are external, centered in the outer world of people and things. Introversion refers to an attitude in which one's main points of reference are internal.

Judgment vs. Perception (J-P). Judgment is defined as coming to a conclusion about something. Perception is defined as becoming aware of something.

Sensation vs. Intuition (S-N). Sensation is the direct awareness of something by way of one or more of the senses. Intuition is indirect perception by way of the unconscious, accompanied by ideas or associations which the unconscious adds to the sensations from outside the organism.

Thinking vs. Feeling (T-F). Thinking is a logical process, aimed at an impersonal finding of fact. Feeling is a process of appreciation, bestowing personal and subjective values upon elements of a situation.

The individual attitudes and functions are defined further in connection with the detailed description of the Myers-Briggs Type

Indicator in Chapter III.

Principal is defined as a permanent, resident, middle level, line, generalist. He differs from the superintendent in that he is middle level and resident. The definition includes the assistant principal where supervisory duties are attached to that office.¹

Superintendent is defined as a supervisor who is permanent, non-resident, high level, line, generalist. The definition includes inspectors, supervisors of the Atlantic provinces sort, and the large number of different kinds of assistant superintendents who act as agents of the superintendent.²

Positive cell refers to a chi-square test of statistical significance where an observed frequency exceeds the expected frequency.

Negative cell refers to a chi-square test of statistical significance where an observed frequency is less than the expected frequency.

II. A THEORY OF TEACHER AND ADMINISTRATOR

SELECTION, RETENTION, AND PROMOTION

Both definitions and constructs of theories differ greatly, depending in large part upon the nature of the particular field and also upon the quality and extent of knowledge previously accumulated in the field of study. Thus the word 'theory' is here used to refer to

¹J. H. M. Andrews, "Who Shall Supervise?" (Lecture delivered in Banff, Alberta, May 20, 1960.) Mimeographed, p. 2.

²Ibid.

Jung's conception of personality, as it is applied to personnel in education in this study. As such, it must be evaluated on the basis of what is in, not by what is left out, and an important criterion of the theory is the degree to which it points to new knowledge.¹

General Aspects of the Theory

The study is based upon a theory which underlies the choice of the major testing instrument, and which governs the procedure of the study and the analysis of the data. The rationale is as follows:

(1) The study rests upon Jung's theory of human behavior. The writer takes the position that "data collection in the absence of theory may be almost meaningless activity."² This position is taken despite the fact that the theory underlying this study is highly tentative, exploratory, and incomplete.

(2) The theory is a relatively simple one, consisting "of simple constructs, axioms, and theorems with not too great a demand for rigor."³ Thus the theory employs a limited number of dimensions of personality, i.e., parsimony is favored over an open-end theory or one employing a large number of dimensions. McClelland⁴ states that "it is

¹Daniel E. Griffiths, "Toward a Theory of Administrative Behavior," as found in Roald F. Campbell and Russell T. Gregg (eds.), Administrative Behavior in Education. New York: Harper & Brothers, 1957, p. 363.

²Bass, op. cit., p. 32. ³Ibid., p. 31.

⁴David C. McClelland, "Personality," as found in J. L. McCary (ed.), Psychology of Personality. New York: Grove Press, Inc., 1956, p. 326.

The first of these is the fact that the
economy is not in a state of equilibrium.
The second is the fact that the
economy is not in a state of equilibrium.

The third is the fact that the
economy is not in a state of equilibrium.

The fourth is the fact that the
economy is not in a state of equilibrium.

The fifth is the fact that the
economy is not in a state of equilibrium.

The sixth is the fact that the
economy is not in a state of equilibrium.

The seventh is the fact that the
economy is not in a state of equilibrium.

The eighth is the fact that the
economy is not in a state of equilibrium.

The ninth is the fact that the
economy is not in a state of equilibrium.

The tenth is the fact that the
economy is not in a state of equilibrium.

difficult to see how one can have a science of personality unless he deals with a limited number of constructs."

This in no way represents a repudiation of the scientific method. Rather, it is a recognition of the fact that only the barest beginning has thus far been made in the behavioral sciences. Consequently, research in this area must be as rigorous as possible, but it is even more important that the research produce new facts which will serve as cues in successively more rigorous studies in the future. The study of human personality factors as they affect administrative behavior is still very much in an exploratory stage today, hence the most important function of theory at present is that of generating further research.¹ Theory, therefore, should be evaluated in terms of this capacity to stimulate further study, rather than in terms of any other criterion.²

(3) The theory assumes 'normal' personality characteristics as distinct from characteristics which fall on a continuum of normal-abnormal. This approach is one suggested as fruitful, and it may tend to reduce contamination of results due to social desirability factors.³ The social desirability factor may be further minimized by the fact that subjects may omit responses to test questions, if they wish, on the personality instrument used in this study.

¹Hall and Lindzey, op. cit., p. 547. ²Ibid., p. 550.

³Allen L. Edwards, The Social Desirability Variable in Personality Assessment and Research. New York: The Dryden Press, 1957, p. 59.

(4) The theory assumes the presence of measurable preference-types, or value systems among individuals. This position is intermediate between a position where individual differences are ignored, and one where it is assumed that the individual is unique and therefore cannot be compared with any other individual. The assumption of preference-types is an attempt to bridge the gap between trait and situationist theories, taking the position that situations may be defined in terms of the preference-types of the persons involved in the situation.

Trait studies conducted in the past have been largely discredited, yet those who espouse the situationist approach recognize that there are personality variables which seem to operate independently of the situation. In this connection, Hall and McIntyre¹ state that the problem at least in part is one of semantics, because some writers who inveigh against traits are perfectly willing to acknowledge attributes or characteristics.

Cattell² and others are ready to assign an individual to a type, whereas Meehl and others aim at prediction from the total profile without passing through a type.

(5) Individuals differ in their personalities to the point where

¹Roy M. Hall and Kenneth E. McIntyre, "The Student Personnel Program," as found in Campbell and Gregg (eds.), op. cit., p. 406.

²Raymond B. Cattell, Personality and Motivation Structure and Measurement. Yonkers-on-Hudson, New York: World Book Company, 1957, p. 374.

no verbal characterization can do complete justice to their individuality.¹
The variance within the types, however, is assumed to be less than the variance between types.²

(6) The types tend to be enduring, hence of significance for study and prediction.

(7) Each occupation requires a characteristic pattern of abilities, interests, and personality traits, with tolerances wide enough, however, to allow both some variety of occupations for each individual and some variety of individuals in each occupation. Occupations vary in the degree of this tolerance.³

(8) Multiple causation is recognized, which reduces the possibility of the economical isolation of determinants for the individual. The nature of the career pattern for the individual is determined by the individual's parental socio-economic level, mental ability, personality characteristics, and by the opportunities to which he is exposed.⁴

The goal of such a behavioral theory is suggested by Bass:⁵

It is suggested that if we can determine some of the functional demands and limitations placed on a potential leader in different

¹Paul E. Meehl, Clinical versus Statistical Prediction. Minneapolis: University of Minnesota Press, 1954, p. 129.

²Louis L. McQuitty, "Elementary Linkage Analysis for Isolating Orthogonal and Oblique Types and Typal Relevancies," Educational and Psychological Measurement, 17 (Summer, 1957), 207-229.

³Donald E. Super, "A Theory of Vocational Development," The American Psychologist, 8 (August, 1953), 185-190.

⁴Ibid. ⁵Bass, op. cit., p. 21.

designated situations, and then determine the personal characteristics associated with persons best able to meet those demands and work within the limitations, we will be in a position to forecast the likelihood of success and effectiveness of each candidate for the leadership of a specified situation, knowing the specific characteristics of the situation and each candidate.

Considerable progress has been made in determining functional demands and limitations placed on the potential leader in different designated situations, for example, in the many studies of roles and statuses. Very little has been accomplished, however, in determining personal characteristics which are useful in selection, retention, or promotion.

The Theory Related to Aspects of Significance to Administration

(1) Though there are believed to be many 'kinds' of teachers in training and in service, forming a continuum from 'good' to 'poor' teachers, yet many persons who possess commonly accepted surface qualifications for the teaching profession have no interest or desire to enter the profession. Although multiple factors may be involved, this observation led to the hypothesis that the teacher population differs in the distribution of personality types from that of the general population.

The theory departs from the pattern of most research within the scope of this study in that no attempt is made to isolate the characteristics of the education student, the teacher, or the administrator.¹ The theory holds that individuals with opposite characteristics may

¹A. S. Barr and others, "The Measurement and Prediction of Teacher Efficiency," Review of Educational Research, XXV (June, 1955), 261-269.

choose the same occupation or profession, and each may be effective in his own way. Each dimension of personality, as defined within the theory, makes its own characteristic contribution to human behavior. Andrews¹ suggests that "at the present state of research in education it may be more useful to investigate the differences between teachers than to attempt generalizations pertaining to all teachers."

On the basis of his extensive review of the literature on leadership, Gouldner² suggests that investigators have been influenced by an individualistic bias as indicated in the many attempts to find the characteristics of the leader. Instead of this conventional and largely fruitless approach, Gouldner suggests the possibility of isolating a minimum core of personality characteristics that would be necessary in the composite of the leadership group, but not necessarily in each individual. Thus the core of personality characteristics may be found in a sample of leaders in varying degrees, and each personality characteristic would contribute to one kind of leadership.

(2) Many of the students enrolled in the minimum program of teacher education possess all the necessary academic qualifications to enrol in the degree program. The current availability of financial aid in many forms tends to eliminate economic factors as a possible cause of

¹John H. M. Andrews, "Administrative Significance of Psychological Differences Between Secondary Teachers of Different Subject Matter Fields," unpublished doctoral dissertation, The University of Chicago, 1957, pp. 143-144.

²Alvin W. Gouldner (ed.), Studies in Leadership. New York: Harper & Brothers, 1950, p. 45.

this phenomenon. This situation led to the formation of an hypothesis that students in the minimum program are nearer to the general population than to teachers in service in the distribution of personality types represented. In other words, enrolment in the minimum program may be a temporary expedient, or a trial attempt by personality types who may not be well-suited to the teaching profession. This hypothesis may be further supported or rejected in the future by a followup study of drop-outs and transfers into the degree program.

In the teaching profession, placement procedure is a matter which Eysenck¹ terms a 'closed system.' The attempt is made to place all who have qualified academically. There is concern over placing each candidate into the type of teaching position best suited to his interests and abilities, rather than employing some and turning away the remainder. Thus it is essential to have a carefully balanced system, in which the abilities of the candidates and the demands of the field are considered. This necessitates the best possible compromise between the varying abilities of different individuals and the needs of the field. The goal is to obtain a teaching force at once more productive and more contented in their chosen profession. Criteria to effect such a compromise are lacking at present.

(3) Administrators are normally recruited or selected from teachers in service. Recent but scant literature emphasizes the point

¹H. J. Eysenck, Uses and Abuses of Psychology. Baltimore: Penguin Books Inc., 1953, pp. 119-120.

that not all 'good' teachers may become 'good' administrators.¹ This suggests that some teachers should remain teachers, while others may be encouraged to enter administrative positions. This possibility led to the formulation of the hypothesis that fewer types may be characteristic of principals than of teachers. At present there is no known valid procedure for making such decisions, and recruitment into administrative posts is largely self-recruitment via additional training and seniority.

(4) The same logic may be applied to principals and superintendents, where, to some extent at least, different skills are involved in the two positions. In this connection, Stogdill states:²

When one man follows another into the same job, the two do not perceive themselves as having a similar degree of responsibility and authority in the job. These findings suggest that the amount of authority and responsibility that a member perceives himself as having is determined to some extent by the nature of the job but to a larger extent by the member's characteristic manner of approaching a job and evaluating his role in a group.

Selection practices suggest that not all principals may become acceptable superintendents. This suggests the hypothesis that there may be a further reduction of characteristic types among superintendents.

(5) Each level in this study is, in general, recruited or selected from the preceding level. This suggests the logic of hypothesizing fewer characteristic types at each successive level - a pyramid of types.

¹Bass, op. cit., p. 190.

²Ralph M. Stogdill, Individual Behavior and Group Achievement. New York: Oxford University Press, 1959, p. 194.

(6) Despite the obvious influence of many other variables, it is logical to hypothesize that characteristic types of teachers will tend to be more satisfied, to secure more training, and to remain longer in the profession than less characteristic types. This implies that less characteristic teacher types are more apt to drop out of the profession, and that married women of the characteristic types are more apt to return to the profession.

(7) Emphasis in the literature on the importance of decision-making and the ability to work with people suggests the hypothesis that the personality dimensions of judgment and extraversion are modal for administrators in education.

(8) Little progress has been reported in the literature on distinguishing between the 'good' and the 'poor' teacher. Preliminary research with the Myers-Briggs instrument suggests the hypothesis that teachers rated as effective may be distinguished as a group from those rated as less effective on the basis of personality type. This, however, forces an assumption which cannot be assured scientifically, that the rater or raters can judge teaching effectiveness to some degree.

(9) Earlier research by Andrews¹ has supported the hypothesis that different subject matter areas attract different personality profiles. This study will test a similar hypothesis, using, however, a different kind of personality instrument.

¹Andrews (1957), op. cit.

Sub-problems and Delimitation

(1) The first problem to be investigated is whether teachers and administrators can be distinguished as different groups on the basis of the deviation of personality patterns from the known distribution of types of the general population, and whether a pyramid of personality types - progressively decreasing in number - can be established for the following selected levels:

- (a) The general population of known distribution of personality types
- (b) Beginning students of education in the minimum program
- (c) Students of education in the degree program
- (d) Teachers in service
- (e) Principals
- (f) Superintendents

(2) Significant differences between teaching preferences for the elementary, the junior high school, and the senior high school levels will be sought on the basis of differences in the distribution of personality types.

(3) The possible differences in the sample between teachers of distinct subject matter fields and other teachers will be examined on the basis of differences in the distribution of personality types. A similar study will be made on the basis of stated preferences by education students.

(4) Possible relationships will be sought between personality types and such variables as the number of years of training, years of

service, satisfaction in the profession, and effectiveness of teachers as measured by ratings.

III. HYPOTHESES

Hypotheses to Test a Theory of Teacher and Administrator Selection

(1) Students in education differ significantly in the distribution of personality types from the distribution of types found in the general population.

(2) Certain personality types are characteristic of teachers in service, as opposed to the distribution of personality types found in the general population.

(3) Certain personality types are characteristic of administrators, as opposed to the distribution of personality types found in the general population.

(4) Teachers in service differ significantly from students in education in the distribution of personality types.

(5) Administrators differ significantly from teachers in service in the distribution of personality types, that is, not all teacher types are characteristic of administrators.

(6) Administrators tend to cluster in the four personality types which have in common the extraversion and judgment dimensions.

(7) The levels under consideration in this study: general population; students in education; teachers in service; principals; and superintendents, in that order, form a pyramid of personality types, each level of which is reduced in the number of types from that of the

preceding level.

Hypotheses to Test the Theory for Aspects of Administrative Significance

(8) Teachers of different grade levels and of different subject matter fields, and students who choose different vocational alternatives, differ significantly from other teachers and students respectively in the distribution of personality types.

(9) Teacher satisfaction, as measured by the Teacher Satisfaction Questionnaire, is related significantly to personality type.

(10) Teachers rated as effective differ significantly as a group in the distribution of personality types from those rated as less effective.

(11) Teachers with the most years of training tend to be grouped among the personality types of those teachers rated as most effective.

(12) Teachers with the most years of teaching experience tend to be grouped among the personality types of those teachers rated as most effective.

CHAPTER II

REVIEW OF THE LITERATURE

In Chapter I the problem was stated, the terms were defined, the rationale of the hypotheses was stated, after which the hypotheses of the study were presented. Briefly stated, the problem is to see whether measurable personality characteristics are related to variables of significance to educational administration, including such aspects as recruitment, selection, satisfaction in service, and rated effectiveness.

In this chapter, the hypotheses of the study are examined in the light of the evidence found in the literature. Since the approach and the principal instrument are not discussed directly in any published literature as they would apply to this study, the review of the literature will take the following form:

- I. Studies of teacher and administrator characteristics
- II. The personality theory underlying this study
- III. The study in the context of theories of administration

In connection with the third section of the chapter, a critique is presented on the use of a type approach in the study of personality, which is followed by a concluding statement.

I. STUDIES OF TEACHER AND ADMINISTRATOR CHARACTERISTICS

Little has thus far been learned about the personality structure of teachers and administrators, despite the fact that a vast number of

studies have been undertaken with respect to this problem. Hall and McIntyre¹ reviewed the research in this area and concluded that "meager as is the research on teacher recruitment, it seems abundant in comparison with the reports of studies directed at the problem of recruitment of school administrators." The many studies of teacher traits have produced confused and conflicting results. Brim² notes that "comprehensive reviews show no systematic commonality of interests or other traits among educators," and he urges the approach taken in this study:

Some teachers of given personal characteristics may be more effective with boys, others with girls; some with bright children, others with the average student; some may work best with the social isolates, others with the classroom leaders; some may teach best the working-class youngsters, while others do better with the middle-class students. Teachers themselves are the first to admit that they seem to do better with one rather than another type of student, and the preferences of different students for various teachers is easily recognized as part of one's own life experience. This is not, therefore, a novel observation, but somehow it seems to have escaped attention as a critical research problem. Were the sociologist to dig in here and analyze the interpersonal relations between various types of teachers and students, correlating these with educational results, the results of his study could point the way toward selecting teachers of certain characteristics to work with certain types of children. In any event it would be a move away from the stultifying conception of some single optimum type of teacher, which one tries to produce through training, and to which one demands the conformity of all educational personnel.

Lieberman³ gives a very comprehensive review of the many studies

¹Roy M. Hall and Kenneth E. McIntyre, "The Student Personnel Program," as found in Roald F. Campbell and Russell T. Gregg (eds.), Administrative Behavior in Education. New York: Harper & Brothers, 1957, p. 401.

²Orville G. Brim, Jr., Sociology and the Field of Education. New York: Russell Sage Foundation, 1958, pp. 31-32.

³Myron Lieberman, Education as a Profession. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1956, p. 255.

of teacher characteristics. He too rejects the notion of commonality of teacher traits, and calls the situation chaotic, but he is willing to consider the possibility that there may be a particular personality type or pattern that is best suited for teaching. He concludes:

Discussions of teacher characteristics often oscillate between the notion that anyone, or anyone with a college degree, can teach, and the equally untenable notion that there is one and only one kind of teaching personality. Dogmatic insistence upon either view is something to be avoided. Insofar as our present instruments and techniques of evaluation can tell us, many different kinds of persons have been good teachers.

This latter statement is supported by Blum¹ who found a great amount of heterogeneity among education students when he tested them with the Strong Vocational Interest Test and the Minnesota Multiphasic Personality Inventory.

Brookover² states that "there is no known investigation of the proportion or distribution of any type of teacher personality," and presumably this holds for administrators as well.

Duncan,³ in a review of research dealing with human problem solving, states that "problem solving particularly needs research to determine the simple laws between dimensionalized independent variables and performance." While it may be much too premature to speak of laws, this study may be a step toward establishing certain relationships

¹Lawrence Philip Blum, "A Comparative Study of Students Preparing for Five Selected Professions Including Teaching," Journal of Experimental Education, XVI (September, 1947), 31-65.

²Wilbur B. Brookover, A Sociology of Education. New York: American Book Company, 1955, p. 343.

³Carl P. Duncan, "Human Problem Solving," Psychological Bulletin, 56 (November, 1959), 397-429.

between dimensionalized independent variables and teacher and administrator performance.

Taba¹ makes an important statement which is relevant to the problem of this study:

Little as yet is known also about the relationship of group processes and of interpersonal networks to various types of personality and to personal problems of individuals who make up groups. It is obvious that the productivity of any group - be it with reference to a task or with reference to learning - depends in a large measure on the degree to which the individuals in it can play constructive rather than destructive roles. Present studies have only enumerated these roles. There are no adequate analyses of the relationship of these roles to personality structure and personal needs, nor any experiments regarding the extent to which these needs and structures can be altered by a climate set up in a group. Kurt Lewin's original study of the effect of climate on leadership roles obviously dealt only with gross differences in democratic and autocratic group climate and their effects on engendering different conduct on the part of group members. It did not deal with the habitual roles dictated by certain personality types and needs, the extent to which group climate can modify these, and the conditions under which these modifications are possible.

This study is an exploratory one in the direction indicated by Taba, but is only a first and necessary step.

Dukes² reports research which showed that students who held the same general value orientation as their instructor were found to have higher final marks as determined by objective examinations than those of equal mental ability but differing in value orientation from the instructor. On this cue, Dukes suggests that vocational success may be

¹Hilda Taba, With Perspective on Human Relations. Washington: American Council on Education, 1955, p. 143.

²William F. Dukes, "Psychological Studies of Values," Psychological Bulletin, 52 (January, 1955), 24-50.

significantly related to congruence of values of employees and employers-managers-owners.

Roe¹ states:

No truly comprehensive work has been done with personality tests as such in the field of occupational psychology. There are many studies of particular groups by personality inventories, and a few with projective and other techniques. Although the evidence is not extensive there nevertheless seems to be no doubt that some specialized occupations, at least, do attract persons who resemble each other in some personality characteristics. How far this is true of occupations generally we do not yet know, although we shall see that there seem to be some regular patterns. Although those who follow a particular occupation may tend to show certain personality patterns more often than other patterns there will be many in the occupation who do not have a modal pattern. My own studies suggest that the deviates may have a particular contribution to make, in part because they may look at problems in slightly different ways than the others. It is probable that some basic correspondences, in interests at least, are essential, and that the extent and number of deviations from the mode vary enormously from one occupational group to another.

Certain kinds of people are genuinely unsuited to some kinds of occupations, and personality and interest factors are of major importance in determining this. It is certainly true that there is more than one job at which anyone could work contentedly, but it is probably also true that only one or two kinds of occupations would prove congenial to each person.

The approach suggested by Roe is explored in the present study.

Roe² further reports research which suggests that teachers may form four general groups on the basis of four instruments used in testing a large sample of teachers: teachers of foreign languages and English; early elementary (grades 1-3), home economics, and physical education; art education and music teachers; and late elementary (grades 4-6) and

¹Anne Roe, The Psychology of Occupations. New York: John Wiley & Sons, Inc., 1956, p. 80.

²Ibid., p. 230.

special education teachers. This once again suggests that the teaching profession is not one but many occupations, and the heterogeneity may be anticipated.

Of particular interest is the extensive six-year study by Ryans,¹ which involved 6000 teachers in 1700 schools, and 450 systems. In his review of the literature, he concludes that adequate descriptions of major teacher characteristics have not yet been developed. He suggests:

It seems probable that, without losing sight of the importance of developing means of recognizing 'good' teachers, attention of the researcher might first more properly and profitably be directed at the identification and estimation of some of the major patterns of personal and social characteristics of teachers.

He further states the desirability of research being carried out within a framework of theory. "Few attempts have been made to organize and formulate principles of teacher behavior, and the study of teachers has been largely of a blunderbuss sort."

Possible correlates with Jungian dimensions occur as a result of his factor analyses of data derived from direct observation and assessment of teacher classroom behavior. Three patterns were cited as standing out in particular:

(1) Warm, understanding, friendly vs. aloof, egocentric, restricted teacher behavior. Possible correlates are: introversion-extraversion, and thinking-feeling.

¹David Garriott Ryans, Characteristics of Teachers. Washington: American Council on Education, 1960, passim.

(2) Responsible, businesslike, systematic vs. evading, unplanned, slipshod teacher behavior. Possible correlates are judgment-perception.

(3) Stimulating, imaginative, surgent vs. dull, routine teacher behavior. Possible correlates are intuition-sensation.

It will be noted that while Ryans offers positive and negative alternatives in each pattern, the alternatives in Jung's theory are all positive despite their sharp contrast. Ryans urges the study of possible correlates with the three patterns he derived.

Educational administrators are recruited from the teacher population. Speaking of organizations in general, Stogdill¹ suggests that the emergence of status differences is related to personality differences among group members, and that otherwise competent members "reach a stage beyond which they appear unable to perceive, conceptualize, and understand all the diverse structural, operational, personal, and environmental factors that are at work in the organization." This again suggests that some competent teachers should remain in the classroom while others may be encouraged to consider administrative positions. This possibility is explored in this study.

At present no instrument has suggested a satisfactory approach, but Campbell² lists four criteria for a special two-year training program

¹Ralph M. Stogdill, Individual Behavior and Group Achievement. New York: Oxford University Press, 1959, pp. 160-167.

²Roald F. Campbell, "Selection and Preparation of School Principals." (Adaptation of address given to Canadian Education Association Short Course for Superintendents, Toronto, Ontario, May 22, 1959.) Mimeographed, p. 5.

for educational administrators at the University of Chicago:

- (1) Possesses a high degree of intellectual capacity
- (2) Exhibits emotional and mental stability
- (3) Is sensitive to and enjoys working with people
- (4) Demonstrates the capacity to organize and direct the efforts of other people

These criteria were developed after a thorough study had been made of all the research available which pertained to selection. These criteria appear in part to be related to the dimensions of personality involved in this study. Myers¹ has demonstrated tentatively a relationship between Jung's types and intelligence and effort. The third criterion above appears to be related to extraversion and feeling, and organizational capacity appears to bear a relationship with the judgment dimension.

Cattell and Drevdahl² compared the test scores of eminent researchers with those of leading academic administrators, outstanding teachers, and the general population, using the 16 P.F. test. Most of the differences were found to be highly significant. Thus the academic scientists as a whole differed from the general population in general intelligence, ego strength, dominance, desurgency, lack of group super-ego standards, adventurousness, sensitive emotionality, lack of paranoid trends, lack of free-floating anxiety, and compulsive superego. Admini-

¹Isabel Briggs Myers, Some Findings with Regard to Type, and Manual for Myers-Briggs Type Indicator. Preliminary edition. Swarthmore, Pa.: Author, 1958.

²R. B. Cattell and J. E. Drevdahl, "A Comparison of the Personality Profile (16 P.F.) of Eminent Researchers with that of Eminent Teachers and Administrators, and of the General Population," The British Journal of Psychology, XLVI (November, 1955), 248-261.

strators alone differed from the general population in showing lower somatic anxiety. Compared with researchers, administrators showed higher regard for exactness, high standards of behaviour, and rather obsessional trends. The study is of particular interest because it represents profiles of successful men, in essentially the same field, who chose to enter either administrative or research work. While it is not possible to equate or relate Cattell's personality factors with the Jungian dimensions of this study with any degree of certainty, support is given from the study to the rationale that not all teachers necessarily possess the qualifications desirable for administrative work.

II. THE PERSONALITY THEORY UNDERLYING THE STUDY

Briefly stated, Jung's personality theory consists of two pairs of psychological attitudes: extraversion-introversion (E-I), and perception-judgment (P-J); and two pairs of psychological functions: sensation-intuition (S-N), and thinking-feeling (T-F). While all of these attitudes and functions are present in each individual, people tend to develop one in each pair more than the other, thus giving rise to sixteen different combinations or preference-types. These attitudes and functions are defined and elaborated in connection with the discussion of the principal instrument used in this study. The constructs were developed by Jung¹ who laid great stress upon the concept that

¹Carl Gustav Jung, Psychological Types. Translated by H. G. Baynes. London: Routledge & Kegan Paul, Ltd., 1923.

these were hypothetical and tentative and were not to be taken as pure types. The theory, however, permits a tentative study of human personality on both the trait level and on the type level.

There appear to be at least two independent theoretical developments which bear a striking relationship to Jung's theory. The first was developed by Ferriere¹ in 1905 and succeeding years, and it included types similar to Jung's: extraversion, intuition, thinking, feeling, and sensation. Ferriere, however, conceived of psychological types in terms of the stage at which the individual's development had come to rest, rather than in terms of the preponderance of a particular function or attitude, as did Jung. Jung's major work on psychological types appeared in 1923. Five years later, in 1928, Spranger's book appeared in which he described six types of human personality: theoretical, political, religious, aesthetic, economic, and social.²

While there is no one-to-one relationship between these latter two theories, the similarities between some of Jung's types and some of Spranger's types are striking, e.g., the theoretical type compared with the introvert-intuitive-thinking type. This evident relationship was pointed out to Jung by the writer; however, Jung in reply did not acknowledge that a similarity existed.³ A possible relationship between

¹Adolphe Ferriere, Psychological Types. Translated by Wyatt Rawson. London: William Heinemann, Ltd., 1958.

²Eduard Spranger, Types of Men. Translated by Paul J. W. Pigors. Halle (Saale): Max Niemeyer Verlag, 1928.

³Carl Gustav Jung, private communication, April 8, 1960.

the two theories, however, was acknowledged by Spranger.¹ Recently Saunders² completed a factor analysis of a sample of 1132 subjects tested with the instruments developed from each theory. As he had hypothesized, Saunders concluded that the scores based on Spranger's theory may be regarded as depending on the third-order interaction of the four basic dimensions of the Jungian theory. While some of the type comparisons did not emerge clearly, similarities far beyond chance expectation did occur and further study is recommended. The sixteen preference-types thus may produce distinct value systems, which appear to encompass and extend Spranger's theoretical values. Of Spranger's approach, McClelland states:³

The scheme has a certain appealing simplicity and has many practical advantages. What it lacks is a method of classifying the particular nature of the ideas or values a person has in each of these areas. The score for intensity of interest does not give a sufficient picture of the content of the interest.

Similarly, Meehl⁴ terms the test based on Spranger's values a "remarkably good test," but he too feels the need to improve the approach. The instrument based on the Jungian dimensions purports to offer a system of traits which combine to form such value types.

¹Eduard Spranger, private communication, July 26, 1961.

²D. R. Saunders, Research Bulletin (RB-60-6). Princeton, New Jersey: Educational Testing Service, April, 1960.

³David C. McClelland, "Personality," as found in J. L. McCary (ed.), Psychology of Personality. New York: Grove Press, Inc., 1956, p. 351.

⁴Oscar Krisen Buros (ed.), The Third Mental Measurements Yearbook. New Brunswick: Rutgers University Press, 1949, p. 101.

The theory, furthermore, purports to deal with the perceptual system of the individual. It takes the position that personality structure is dependent upon the ways in which one develops his mental perceptual-judgmental system. According to Jung, the perceptual system will be either sensation or intuition, and the judgmental system will be either thinking or feeling. In addition, the individual will develop either the perceptual or the judgmental system more than the other. Thus three of the four paired dimensions are related to perception-judgment. The fourth paired dimension, introversion-extraversion, refers to perception which is intentional in nature, i.e., related to the person's purposes and goals:¹

Conceptually, S-N is concerned with an informational input, and asks whether the individual's perceptions are stimulus-bound or, alternatively, free-associative. E-I is concerned with an intentional input, and asks whether the individual's purposes and goals are a function of his immediate environment or, alternatively, carried around from one situation to another.

The correlation between the two paired dimensions is not significant.

Murray,² whose theory of needs has attracted wide attention and study, has more recently recognized that needs always operate in the service of some value. His list of values consists of body (physical well-being), property (useful objects, wealth), authority (decision-making power), affiliation (interpersonal affection), knowledge (facts and theories, science, history), aesthetic form (beauty, art), and

¹Saunders, op. cit., p. 14.

²Calvin S. Hall and Gardner Lindzey, Theories of Personality. New York: John Wiley & Sons, Inc., 1957, p. 183.

ideology (system of values, philosophy, religion). The close relationship of these values to those of Spranger, and, less directly to Jung's types, seems plausible. Thus this aspect of Murray's theorizing appears to give some indirect support for the theory involved in this study.

Cattell¹ observes "that the arbitrary and therefore scientifically obsolete categories of the Allport-Vernon test, derived from Spranger's 'types,' do prove to have some resemblance to categories of the . . . factorial type now emerging from basic research, which may account for their degree of practical effectiveness." He believes that these factors affect occupational choice, and this appears to be further support for the theoretical approach taken in this study.

Jung² expressed his interest in the present study and agreed that the statistical line of research planned was perfectly legitimate, but he expressed grave doubts and skepticism about this kind of use of his theory. He emphasized that his purpose in developing the type concepts for psychotherapy was an attempt to help individuals needing explanation of themselves and knowledge of their fellow beings.

Pierce and Merrill³ reviewed the literature extensively with regard to characteristics of the individual in educational administration, and

¹Raymond B. Cattell, Personality and Motivation Structure and Measurement. Yonkers-on-Hudson, New York: World Book Company, 1957, p. 782.

²Carl Gustav Jung, private communication, April 8, 1960.

³Truman M. Pierce and E. C. Merrill, Jr., "The Individual and Administrator Behavior," as found in Campbell and Gregg (eds.), op. cit., p. 349.

they point to two significant trends and leads:

Perhaps one of the most significant indications growing out of the newer studies is the importance of value concepts as determinants of behavior characteristics. This has been revealed by several recent studies.

Another important lead comes from the emphasis on perceptual theory which is emerging almost simultaneously from a number of the studies. Basic to this concept is the notion that behavior is explained in terms of an individual's conceptualization of his role and functions in a given situation. Similarly, the performance of a leader when judged by others is in terms of their perceptions of the leader and his role.

Postman and associates¹ report on their research which seems to link values and perception. In a study of the perception of high- and low-value words, their hypothesis was supported that personal values are demonstrable determinants of what the individual selects perceptually from his environment. Jung's theory of personality purports to treat both perception and values, and it is possible that different Jungian types will respond characteristically to such high- and low-value words.

The study by Witkin and associates² appears to be relevant to the study at hand. On the basis of their elaborate study of perception, they conclude:

It is apparent that there are aspects of human psychological organization essential to a definition of that organization (for example, characteristic ways of perceiving, of thinking, of learning; patterns of intelligence; attributes of reactivity; social attitudes) that are clearly amenable to experimental study. The evidence now beginning to be available indicates that these aspects represent basic and deep-seated features of the individual. Thus our own

¹L. Postman and B. H. Schneider, "Personal Values, Visual Recognition, and Recall," Psychological Review, 58 (July, 1951), 271-284.

²H. A. Witkin and others, Personality Through Perception. New York: Harper & Brothers Publishers, 1954, pp. 514-515.

study has shown that a person's preferred mode of perception remains stable over a long period of time, and that individual differences in mode of perception appear early in psychological development. Moreover, because of the unified nature of the system involved, information gained by study of a given aspect of functioning, such as perception, is not limited to that area alone but is revealing of other areas, and of more general features of the system as well. Many studies, including our own, have shown that a certain way of perceiving is associated with the presence of certain needs and feelings, and with particular ways of handling these needs and feelings. Furthermore, the kind of functioning revealed in perceptual activity has proved to be representative of the coping techniques generally employed.

This statement appears to be in harmony with Jung's theory of personality. It seems possible that Witkin's 'field-dependent' and 'independent perceptual' subjects may be related to Jungian dimensions of personality.

McClelland¹ concurs with Witkin's approach to personality:

On a common-sense basis at least, there certainly seem to be ways of thinking, perceiving, moving, and working which appear highly similar. In determining what responses to group together as similar, we can be guided in the first instance by theoretical convenience. That is, we may set up hypotheses as to response similarity, based on rational analyses of the ways in which an organism can function.

Rokeach² also acknowledges that his study of belief systems bears some relation to Witkin's approach.

With respect to the four sets of paired-dimensions of the Jungian theory, taken singly, it is difficult to make direct comparisons with apparently similar concepts in the literature, since one can never be certain that different researchers mean the same thing with given concepts.

¹David C. McClelland, Personality. New York: The Dryden Press, 1951, p. 221.

²Milton Rokeach, The Open and Closed Mind. New York: Basic Books, Inc., 1960, p. 397.

This situation is particularly true of extraversion-introversion (E-I), which has suffered from the abuse of popular misunderstanding and misuse, and, contrary to Jung's conception, introversion is often linked with a degree of abnormality. Despite this, the introversion-extraversion dimension finds considerable support. As a result of his many factor analytic studies, Cattell¹ states:

It is noteworthy that the very nature of the objective tests now revealed . . . agree with the Jungian conception of extraversion.

With this possibility of defining extraversion-introversion, as a unique second-order factor, instead of as a rough correlation cluster or a vaguely conceived mixture of the personality primaries . . . it is perhaps worth while to make a determined attempt to rescue the label "extravert-vs-introvert" from the scientific disrepute and uselessness into which it has fallen through popular adoption.

In a recent comprehensive review of research on E-I, Carrigan² notes that over the past decade E-I has gradually been reinstated as an important focus in personality research, but concludes that the evidence for the status of E-I remains somewhat tenuous.

The judgment-perception (J-P) dimension of the test used in this study appears to be different from any other scale in personality measurement. Hilgard,³ however, describes two kinds of leader behavior which on the surface correspond closely to the descriptions of judging

¹Cattell (1957), op. cit., p. 267.

²Patricia M. Carrigan, "Extraversion-Introversion as a Dimension of Personality: A Reappraisal," Psychological Bulletin, 57 (September, 1960), 329-360.

³Ernest R. Hilgard, Introduction to Psychology. 2nd Edition. New York: Harcourt, Brace and Company, 1957, pp. 516-517.

types and perceiving types of Jungian theory. The judging type achieves his acceptance through administrative efficiency, tightness of organization, and orderliness. This is contrasted with the free expansive leader who is not likely to respect routine and orderly ways. Followers want both qualities in order to feel secure and important, but are likely to get only one or the other.

Sherif and Sherif¹ state that "effective use is being made of . . . perceptual-judgmental reactions in studying personality characteristics of the individual, even though the underlying theory and practical criteria for their use are not wholly clarified." In the present study it is assumed that such reactions may be studied by means of written responses to test items, instead of reacting to visual stimuli.

The intuition-sensation (N-S) dimension and the thinking-feeling (T-F) dimension seem to bear a close relationship to various studies. Short² classified 150 subjects according to the presence or absence of mental imagery. Analysis of "varying successes and failures with simple arithmetic problems achieved by different imagery types suggests that imagery differences with their special physiological characteristics may be of fundamental importance in the basic structure of personality." He suggests that these differences are inborn and are probably inherited. His 'visualist' and 'verbalist' types seem to be closely related to

¹Muzafer Sherif and Carolyn W. Sherif, An Outline of Social Psychology. Revised Edition. New York: Harper & Brothers, 1956, p. 505.

²P. L. Short, "The Objective Study of Mental Imagery," British Journal of Psychology, 44 (February, 1953), 38-51.

Jung's sensation and intuition types, although other dimensions may also be involved.

Roe¹ found significant and interesting differences of imagery among 64 eminent scientists, and was able to associate differences of imagery with different fields of science. Roe concludes:

My data offer no information on why subjects have come to rely on some modes of thinking rather than others. . . . The association with test performance, suggested here, could be easily pursued. The vocational aspect also warrants further investigation, with particular regard to its implications for training. The relation of imagery to perceptual characteristics of the sort currently being investigated by Witkin and his associates is another important line of research. The first need, of course, is for some more adequate techniques upon which to base categorization of subjects. Development of such techniques would open all of these problems to direct investigation and would, finally, shed much light on the whole problem of thinking, particularly of 'creative thinking.'

Vernon² also encourages further investigation of this kind, suggesting the possibility that "visual and verbal types might be found more fundamental, and that important links might be established with aesthetic, practical and intellectual abilities."

Bieri³ found a marked sex difference in performance on Witkin's Embedded Figures Test upon dividing 112 subjects into two categories: field dependent mode of perception and those who tend toward more motivational, internal perceptions. This study may be related to the

¹Anne Roe, "A Study of Imagery in Research Scientists," Journal of Personality, 19 (June, 1951), 459-470.

²P. E. Vernon, The Structure of Human Abilities. London: Methuen, 1950, p. 89.

³James Bieri and others, "Sex Differences in Perceptual Behavior," Journal of Personality, 26 (September, 1958), 1-12.

strong sex differences found in the thinking-feeling dimension of the Myers-Briggs Type Indicator. Bruner and associates¹ also identify two preferences: those utilizing perceptually immediate attributes, while others are more conceptual or abstract.

Hilgard² contrasts two kinds of leaders which appear to be related to characteristics of the sensation-intuition dimension. "The first kind of leader is intuitive and 'plays by ear.' The second is less intuitive and 'plays by note.'" With respect to the thinking-feeling dimension, Hilgard describes one kind of leader who induces warm-hearted acceptance, and the contrasting leader who is likely to treat his friends harshly if they try to sidestep routine, one who may give a feeling of security to his followers, but who may not arouse their enthusiasm. This latter description appears to point out the weaknesses in human relations skills of the thinking type.

Further evidence on the possible relationships between Jungian theory and the work of Thurstone, Gundlach and Gerum, Spranger, and Murray, has been presented by Myers.³ It is not possible to show a definite relationship between the above studies and the Jungian theory involved in this study. However, the similarity in the theoretical

¹Jerome S. Bruner and others, A Study of Thinking. New York: John Wiley & Sons, Inc., 1956, p. 10.

²Hilgard, op. cit., p. 516.

³Isabel Briggs Myers, Preference-Type as a Key to Personality. Excerpt from pre-publication draft. Swarthmore, Pa.: Author, October 9, 1960, p. 6.

approaches seems striking.

Evidence Bearing on the Use of the Myers-Briggs Type Indicator

(1) Informal Study of Parish Ministers (Saunders, 1956)¹

A sample of sixteen subjects who were at one time or another ordained in the Protestant ministry was given the Myers-Briggs test. Nine members of this sample are currently active in the parish ministry, while the remaining seven members are not, having left in order to teach, administer, counsel, or do research in support of the ministry. Saunders found that the currently active men were a highly homogeneous group, while the other part of the sample was much less homogeneous. The sample was much too small to permit definite comparisons to be made, although the tendency for the active men to fall into the ENFJ pattern was striking.

(2) Study of Yale Divinity Students (Saunders, 1956)

A sample of 108 from the entering class of Yale Divinity School was tested. Saunders found a preponderance of the ENF pattern, but no apparent difference between J and P with respect to the probability of occurrence in this sample. The findings of the first study were supported.

(3) Study of Directors of Religious Education (Saunders, 1956)

A more extensive study was made of a sample of forty-two women applicants for training as Directors of Religious Education. Applicants represented thirteen of the sixteen possible types. Twelve types were admitted to training, and nine types completed training and went into service. The ENF pattern dominated throughout numerically, outnumbering all other types combined by totals of thirteen to ten respectively. Composite ratings of effectiveness consisting of four separate judgments were gathered from persons most closely associated with the subjects. Applying the mean and standard deviation of the rating scores to those still in service, it was found that four of the types were performing effectively, while the remaining five types were performing uniformly poorly. The ENFJ and ENFP dominated numerically in the effective types.

(4) Study of Louisville Theology Students (Saunders, 1957)

A sample of 177 students representing the three classes of the

¹David R. Saunders, Research Bulletin (RB-57-8). Princeton, New Jersey: Educational Testing Service, September, 1957. The first five studies described above are presented in detail in this bulletin.

seminary was given the Myers-Briggs instrument. A preponderance of the ESFJ pattern was found in the sample followed by the ISFJ and the ESFP, in contrast to the ENFJ and ENFP dominating in the Yale study.

(5) Study Involving Rockefeller Theological Fellows (Saunders, 1957)

Thirteen fellows were given the Myers-Briggs Type Indicator. Considering only the test results, predictions were made of the relative likelihood that these thirteen fellows would adjust to the role which their fellowships were enabling them to try for a year at no cost to themselves. These predictions were recorded and sealed in a letter and were in the form of a rank-order in which some ties were recognized. Five of the first six in rank-order returned for further training, while six of the last seven in rank-order did not return. The tau correlation between the predicted ranks (ignoring ties) and the criterion provided by the fellows' current plans for the continuance or non-continuance of their theological education is 0.71, and is statistically significant at the .01 level. Even without the modicum of support which may be provided by the other four studies, this result clearly suggests the pertinence of information provided by the Myers-Briggs instrument.

Discussion of the Five Studies Reported by Saunders. On the basis of earlier research by Myers, a specific, testable hypothesis was stated: a significant plurality of individuals undertaking or applying for "advanced religious training" will belong to one of the patterns, ENFJ or ESFJ.

On the assumption that a pattern frequency table for 'all' graduate level students would differ from the distribution of the general population, a tentative percentage table for graduate students was derived from a sample of 1,873 cases. This table formed the basis of the expected of each of the sixteen patterns. In both the Louisville group and the Yale group the trend was consistent with the hypothesis. For both the initial group of ordained ministers and for the Yale group the highest ratio of observed type frequency to expected-from-chance type frequency is for ENFJ, while for the Louisville group the highest ratio is for ESFJ. Since the chances that one of these two predicted types will yield the highest ratio is 2/16 in each of the three comparisons, the overall probability of obtaining results in such agreement with the hypothesis is about .002. Since the same reference distribution is used in all three comparisons, which are therefore non-independent, a more powerful significance test may be used which yields a probability of .00012 for the data in the first study and similar probability figures for the Yale or Louisville data.

The hypothesis that the ENFJ pattern would predominate in groups that are relatively liberal in their religious views, while ESFJ would

predominate in groups that are relatively more conservative was examined with respect to the Yale and Louisville data. A four-fold table constructed from the frequencies of ESFJ and ENFJ at the two schools yielded a chi-square of 14.9. This one-tailed test was statistically significant at the .00006 level.

With regard to the sample of Directors of Religious Education, the survival rate between the time of admission to training and the time of collecting followup data was tested for ENF as compared with all other types. A four-fold table yielded a chi-square of 9.43 for 1 degree of freedom, one-tailed test, with a probability of about .001.

On the basis of these studies it may be concluded that the Myers-Briggs is probably capable of providing information that is relevant to the selection of persons for advanced religious training. The possibility of applying the instrument to other situations may show similar promise.

(6) Study of Thirteen Private College Presidents (von Fange, 1959)

The Myers-Briggs Type Indicator was administered to thirteen private (religious) college presidents. The dominant pattern emerging was ESTJ, in contrast to the ENFJ and ESFJ patterns found in the two kinds of seminary student bodies. Next in order of frequency were the ENT and ENF (tied) and ESF. An evident incongruity was one case of ISF. This person, however, was temporarily appointed to the position on the basis of seniority in the faculty, and has since been replaced. No attempt was made to treat the data statistically due to the small sample. All but one president possessed the judgment dimension, and, excluding the temporarily appointed president, all were extravert. Four apparently successful concepts of the presidency seem to emerge as a possible hypothesis: the economic (EST), oriented toward conducting a business operation; the religious (ENF), oriented toward religious guidance; the political (ENT), oriented toward leadership or a power concept; and the social (ESF), oriented toward the worker with groups. The lone aesthetic (ISF), held the position temporarily.

(7) Study of Theological Seminary Students (von Fange, 1960)

The Myers-Briggs Type Indicator was administered to a sample of 184 students who attended full-time at Concordia Theological Seminary, St. Louis, Missouri. The data were tabulated into eight basic personality patterns and compared with the expected distribution as found in the general population. This yielded a chi-square of 69.0, where 18.475 was needed for significance at the .01 level. The same tabulation was then compared with the expected frequencies among graduate students, since all students in the sample were working beyond the undergraduate degree. This yielded a chi-square of 114.6 where again, 18.475 was needed for significance at the .01 level. It was concluded that the

sample was distinctly different from both the general population and the general graduate student population in the frequency of personality patterns involved. A preponderance of ESF patterns contributed most to the significance of the difference, followed by the unexpectedly small number of INT patterns.

(8) Study of Competency and Creativity (MacKinnon, 1960)¹

In a study conducted at the Institute of Personality Assessment and Research at the University of California (Berkeley), MacKinnon found that creativity was not closely related either to intelligence or to achievement. Life histories also did not prove to be useful in prediction. Using the Myers-Briggs Type Indicator, MacKinnon found that creative writers and architects tended to center about the INTP pattern, while research scientists and mathematicians tended to have the INTJ pattern.²

(9) Study of Academic Aptitude and Achievement (Myers, 1958)³

Data were secured from 3,411 college preparatory boys in 30 high schools. Myers found that the test distinguished among the sixteen personality patterns in a highly significant manner. Two hierarchies were established on a scattergram with the x axis representing ability means and the y axis the achievement means, both of which were normalized ten-point scales with mean = 4.5 and s = 2. All J types were superior in achievement to their corresponding P type on the basis of group means. In general, the following hierarchy was established in the study: I is superior to its corresponding E type; NT is superior to SF; N is superior to T. The highest in both achievement and intelligence means tend to be the INT types, the lowest are the ESF types, and the remaining types fall between in a theoretically logical order. The holding power of the school or the selectivity in operation for the college preparatory course for each of the types follows very closely the theoretical order. Thus the INT types formed the largest positive cell in the chi-square, that is, the observed frequency exceeded the expected frequency for the general population. The ESF types formed the largest negative cell of the chi-square, that is, the observed frequency was less than the expected fre-

¹Fred T. Tyler, "Competency and Creativity," The ATA Magazine, 40 (February, 1960), 10-14, 30.

²"Creativity," Carnegie Corporation of New York Quarterly, IX (July, 1961), 1-7.

³Isabel Briggs Myers, Some Findings with Regard to Type, and Manual for Myers-Briggs Type Indicator. Preliminary edition. Swarthmore, Pa.: Author, 1958.

quency. Where 24.32 was needed for significance at the .001 level, the data produced a chi-square of 1230.6.*

These studies suggest that the Myers-Briggs Type Indicator measures important dimensions of personality, and that these measures are potentially useful for a variety of purposes.

Anderson¹ states, after reviewing research conducted with the Myers-Briggs Type Indicator (MBTI):

Caffrey . . . is using the promising but unpublished Myers-Briggs Type Indicator (MBTI) and has shown that persons in definable vocational or professional groups (e.g., engineers, nurses, psychologists) tend to have strikingly similar scores. If this finding were verified, the test, discreetly and not universally used, would prove a boon to the hard-pressed high school guidance officer.

In a series of ten journal articles, Gray** described the development of his own test instrument designed to explore Jung's personality theory. Though his instrument passed through fourteen revisions, it does not appear to have reached the level of sophistication attained by the Myers-Briggs instrument. Gray, who was active in the field of medicine, was greatly impressed by the face validity of the test results from various samples, and he believed that the instrument was useful in furnishing a non-provocatory, non-depreciatory assessment which furnished diagnostic insights. On the basis of his own experience with his instrument, Gray correctly predicted the modal male teacher and superintendent

*This calculation was made by von Fange on the basis of data from the Caffrey study.

¹Charles C. Anderson, "Thoughts After Travelling to Western Schools of Education in the U.S.A." Edmonton: University of Alberta, undated. Mimeographed, p. 8.

**See Bibliography for a complete listing of Gray's articles.

preference-type in advance of the data analysis of the present study.¹ This serves as interesting, but indirect, evidence for the reliability of the instrument.

III. THE STUDY IN THE CONTEXT OF THEORIES OF ADMINISTRATION

The paradigm developed by Halpin² offers an intelligent approach for the evaluation of research attempts in the field of educational administration. Halpin asserts that unless research identifies relationships between administrator behavior and organization changes, it is probably circular in nature, or otherwise of little, if any, value. His paradigm consists of a dynamic conception of four inter-related concepts placed into panels: the task, administrator behavior, variables associated with administrator behavior, and criteria of administrator effectiveness. According to the rationale of the theory of the present study, the personality dimensions appear to be relevant to each of the four panels.

The task at hand (Panel I) will stem, for example, from the world of ideas or from the tangible, visible environment, and the personalities of those in power and/or in authority may determine which of the many potential tasks is the most pressing at a given time. Thus the extravert may tend to stress problems involving people and aspects

¹Horace Gray, private communication, August 22, 1960.

²Andrew W. Halpin, "A Paradigm for Research on Administrator Behavior," as found in Campbell and Gregg (eds.), op. cit., pp. 155-199.

of the physical setting, while the introvert may tend to give major concern to the philosophy of education, to the curriculum, or to policy development.

The personality of the administrator may have a pervasive effect upon what he perceives as his task at a given time (Panel II). His behavior as a decision maker, according to preference-type descriptions, is related to the judgment-perception dimension. His behavior as a group leader may depend to a degree upon his preference-type. Human relations skills, for example, may be more characteristic of the extravert and/or feeling leader.

Administrator variables, intraorganization variables, and extra-organization variables (Panel III) may be expressed, at least in part, in terms of the personalities of the individuals involved, since Jung's theory holds that each type tends to act in a characteristic fashion, different from other types.

Organization maintenance, involving human relations skills, and organization achievement, involving intellectual and organizing skills, may be described partially in terms of the preference-type of the respective administrator, i.e., in the strengths and weaknesses of his own preference-type. Change may be measured in two ways: an intellectual, judgmental process based on evidence, or a value or feeling judgment, both of which have their place (Panel IV). The former is characteristic of the thinking types, while the latter is more characteristic of the feeling types.

The present study is not concerned, however, with changes in

organization achievement. It is intended primarily to identify tentatively the kinds of individuals who have chosen the field of education in terms of Jung's theory of personality, and to relate some of their characteristics to matters of significance to educational administration, thus stimulating further research which may be more closely related to change in organization achievement. The present study, then, is primarily concerned with administrator variables and with intraorganization variables.

The present study seems to possess potential relationships with actual theories of educational administration or of leadership. Coladarci and Getzels¹ center on interpersonal relationships for their theory of administrative behavior. By definition, those high in extraversion and feeling would be more likely to be effective administrators under this concept. Simon² stresses decision making. Again by definition, the more effective administrator thus would tend to be a judging type.

Halpin's³ study resulted in the classification of leader behavior according to two dimensions: Initiating Structure, and Consideration. The effective leader is high in both, and conversely, the poor leader is low in both. The preference-type descriptions of the present study

¹Daniel E. Griffiths, "Toward a Theory of Administrative Behavior," as found in Campbell and Gregg (eds.), op. cit., p. 373.

²Ibid., p. 376.

³Andrew W. Halpin, The Leader Behavior of School Superintendents. SCDS Series. Columbus, Ohio: College of Education, Ohio State University, 1956.

appear to be applicable to Halpin's dimensions. Some preference-types, according to their descriptions, may be high in initiating structure only, e.g., introversion-intuition-thinking-judgment (INTJ); others may be high in consideration only, e.g., extraversion-sensation-feeling-perception (ESFP); and some appear to form an effective compromise between the two demands, e.g., extraversion-intuition-feeling-judgment (ENFJ).

Chase and Guba¹ developed a theory of role expectations versus role behavior in administration. In terms of the rationale of the present study, the role expectations are comparable to the preference-type or types which the position appears to require. Various reference groups, as well as individuals within these groups, may envision different types. Role behavior, on the other hand, is the actual preference-type of the incumbent, which may or may not meet the expectations of the various reference groups. Case studies cited by Culbertson and associates² which describe administrators who are highly effective in one situation but who are failures in another situation lend plausibility to this interpretation. As an example, a position which appears to require the introversion-intuition-thinking-judgment (INTJ) pattern would not likely be suitable for a person possessing the extraversion-sensation-feeling-judgment (ESFJ) pattern, even though the latter may be

¹Francis S. Chase and Egon G. Guba, "Administrative Roles and Behavior," Review of Educational Research, 35 (October, 1955), 281-298.

²Jack Culbertson and others, Administrative Relationships. Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1960.

highly successful in another position.

Coffin¹ developed a theory of leadership ability consisting of three components: interest in and aptitude for ideational activities, interest and aptitude in organizational activities, and interest and aptitude for interpersonal, persuasive activities. It seems possible to relate these dimensions to dimensions of the Jungian theory, for they appear to call for the following dimensions: intuition, judgment, and feeling, respectively.

This tentative and hypothetical analysis seems to indicate that the personality dimensions involved in the present study may have some potential toward clarifying and unifying current representative theoretical concepts in administration and in leadership.

Critique of the Type Approach in the Literature

The type approach to personality has been violently attacked and generally abandoned in the literature. Though condemnation has not been unanimous, the fact remains that previous attempts to use a type system have not produced satisfactory results. Two principal dangers in any type theory, according to Hilgard,² are that type descriptions tend to assert too much about the individual, and that types are associated with outmoded conceptions of personality and especially neglect cultural influences. Hilgard, however, makes the important point that a type

¹T. E. Coffin, "A Three-Component Theory of Leadership," Journal of Abnormal and Social Psychology, 39 (January, 1944), 63-83.

²Hilgard, op. cit., pp. 476-488.

approach does not conflict with the conception of the individual as unique. He states:

Satisfactory type theories are not impossible. It may be that we shall eventually isolate men into types as distinctive as the blood types that so markedly affect the success of blood transfusions. There are no logical barriers against such theories. The fact is, however, that present theories have not produced the evidence needed to verify them.

Cattell¹ believes that a properly conceived type system is full of systematic profits for research, while other researchers prefer to attempt prediction on the basis of a profile without passing through a type.² This latter procedure places greater emphasis upon individual differences than is normally done by a type concept. Regarding the use of type concepts in vocational guidance and selection, Vernon³ states:

Indeed, despite the psychological disreputability of the conception of types, it possesses positive advantages in this field. For it is possible to devise a standardized and objective test for measuring a limited number of types of interest, whereas the assessment of an indefinite number of separate occupational interests can only be accomplished subjectively or 'clinically.'

Stern and his associates⁴ have summarized the evident potential weaknesses of the paper-and-pencil tests, which underscore the need for due caution in interpreting such test results.

¹Cattell (1957), op. cit., p. 383.

²Ibid., p. 374.

³P. E. Vernon, "Classifying High-grade Occupational Interests," Journal of Abnormal and Social Psychology, 44 (January, 1949), 85-96.

⁴George G. Stern and others, Methods in Personality Assessment. Glencoe, Illinois: The Free Press, 1956, pp. 135-136.

Concluding Statement

In the examination of the hypotheses of this study in the light of existing literature, difficulties are encountered. Extremely little is known of the teacher and administrator population in education. While results of such research thus far are conflicting, inconclusive, and confusing, no compelling evidence in the literature was found which would appear to discourage the execution of the design of the present study. The hypotheses of this study cannot be tested, even in a tentative way, from existing literature. Furthermore, though there are evident dangers in using a type approach, type concepts are not necessarily a dead issue in human assessment. There seems to be sufficient encouragement in the literature to proceed with the study as designed. Other researchers appear to be working with approaches along similar theoretical lines, and the rationale of the study appears to be in harmony with important current theoretical constructs in educational administration and in leadership research.

CHAPTER III

INSTRUMENTATION AND METHODOLOGY

In order to secure the data necessary to test the hypotheses of the study, the following four instruments were used:

- (1) Teacher Background Information Questionnaire
- (2) Teacher Satisfaction Questionnaire
- (3) Education Student Questionnaire
- (4) Myers-Briggs Type Indicator

The first of these instruments was adapted from a similar instrument used in a study of teacher variables at the University of Chicago.¹ The second was selected from those instruments used in the same study in order to secure data of possible significance to educational administration which could be related to the data of the principal testing instrument. The third instrument was constructed for this study. The Myers-Briggs Type Indicator was selected from the available instruments primarily for its appropriateness to the variables involved in the study, and for its demonstrated validity in previous studies related to selection factors.

In selecting each of the instruments, it was recognized that there would be limitations of time for administration, and that for many of the

¹John H. M. Andrews, "Administrative Significance of Psychological Differences Between Secondary Teachers of Different Subject Matter Fields," unpublished doctoral dissertation, The University of Chicago, 1957.

subjects, this would be the first time that they had participated in a comparable study. Each of the instruments is described below.

(1) Teacher Background Information Questionnaire (See Appendix)

The purpose of this questionnaire was twofold: first, to secure data regarding the characteristics of this sample population; and second, to enable classifications to be made for testing the hypotheses involving this group. The one-page questionnaire of eighteen items requested the following information:

- (a) school by coded designation
- (b) name by code number
- (c) birthdate and age
- (d) sex
- (e) total years of teaching experience
- (f) total number of schools in which full-time positions were held
- (g) major subject or grade taught at present
- (h) other subjects taught if not teaching a full grade
- (i) response to whether or not the teacher was teaching the subject in which he had the most academic preparation
- (j) main subject matter field according to training
- (k) amount of academic training in this subject matter field
- (l) amount of training in Education
- (m) place where this training was received
- (n) grade level preference for teaching
- (o) preference for teaching a grade or a subject matter field
- (p) preference for teaching or for educational administration

(q) statement whether teacher had changed to education from another vocation

(r) name of the teaching credential now held

Due to limitations of time, cost, and availability of subjects, the test-retest reliability was not determined for the instruments of this study. The reliability and validity of the responses can only be assumed in terms of the quality of the questionnaire to elicit true statements. On this kind of procedure, Rummel¹ states that "there could be no more reliable and valid source for this phase of the study than asking the individuals themselves." This, however, assumes that the persons responding to the questionnaire are capable of and willing to formulate and express their opinions and are willing to state factual information about themselves. All but three of the items above request factual information.

The guarantee of anonymity given to subjects participating in the study is assumed to contribute to the accuracy of the responses. The expressed opinions may be based on the true motives and thereby a reasonably accurate portrayal may result. The questionnaire above was successfully used in previous research, and the unusual display of interest exhibited by the teachers in the study is assumed to be indirect support for accepting the accuracy of the information they furnished. Moreover, the results of this study may be taken as indirect support for the reliability and validity of the questionnaire. If followup studies are

¹J. Francis Rummel, An Introduction to Research Procedures in Education. New York: Harper & Brothers, 1958, pp. 52-53.

conducted, however, it would be highly desirable to retest selected samples from this study in order to determine the actual reliability of the instruments involved.

(2) Teacher Satisfaction Questionnaire (See Appendix)

This questionnaire consists of six self-rating scales which purport to provide measures of the following variables:

- (a) Global Satisfaction - the degree of satisfaction with the present teaching position in all of its aspects.
- (b) Social Satisfaction - the degree of satisfaction with the social relationships existing among the teachers.
- (c) Policy Satisfaction - the degree of satisfaction with the educational policies of the school as compared to policies which the teacher feels to be most desirable educationally.
- (d) Occupational Satisfaction - the degree of satisfaction with the occupation or profession of teaching as compared to financially equivalent non-teaching occupations involving the use of the teacher's present academic training. The degree of satisfaction is inferred from the expressed degree of consideration a teacher would give to a non-teaching job opportunity.
- (e) Alternative Employment Perception - the extent to which a teacher feels that non-teaching jobs are available for persons of his sex and training.
- (f) Conformity Pressure - the extent to which a teacher feels pressure to conform to the school's educational policies. The degree of pressure felt by the teacher is inferred from the extent to which he feels that the administration is receptive to criticism of the school's educational policies.

According to Andrews¹ the descriptive graded statements used in each of the six scales were developed out of the experience of researchers

¹Andrews, op. cit., p. 53.

with similar satisfaction scales at the Midwest Administration Center. It had been found that teachers tended strongly to utilize only the top half of such scales. To avoid this skewness, the scales of the instrument used in this study were constructed so that the scale itself was skewed in each case, anticipating that the distribution obtained would then be relatively normal. The purpose of this procedure was to attempt to increase the degree of discrimination between levels of satisfaction.

The discussion of the reliability and validity for the first questionnaire above applies to this scale except that the present scale consists exclusively of personal judgments. In addition, the data secured from the Teacher Satisfaction Questionnaire are assumed to meet the assumptions necessary for the application of the t test. The assumption of equal variance, however, is tested separately in connection with the analysis of data.

(3) Education Student Questionnaire (See Appendix)

This questionnaire was administered to two sample populations of degree program students in education in order to secure descriptive data characterizing the groups, and to relate such data to their personality preference-types in testing hypotheses of this study. In addition to name, age, and sex secured from the respective answer sheets, the following information was solicited:

- (a) grade level preference for teaching
- (b) preference for teaching a grade or for teaching a subject matter field
- (c) preference for teaching or for educational administration

(d) Bachelor of Education degree major

(e) statement whether student had changed from another vocational preference

The above items were selected from the Teacher Background Information Questionnaire. The discussion regarding reliability and validity made in connection with that instrument, therefore, applies to the above instrument.

(4) The Myers-Briggs Type Indicator (MBTI)

The Myers-Briggs Type Indicator is currently undergoing experimental study at Educational Testing Service, Princeton, New Jersey. References to this instrument in the published literature are confined to the Annual Reports¹ of Educational Testing Service since 1956-1957, and to a statement by Cronbach:²

Whereas both the factor analysts and the empiricists developed tests by blind groping to find what correlates-with-what, the more recent trend in personality measurement is to define constructs on the basis of personality theory and to prepare items specifically to elicit information about those constructs. This is not wholly new; indeed, the earliest work on introversion was stimulated by Jung's personality theory. But that theory had little influence on the actual tests, beyond suggesting items for trial. Today, considerable research is going into the Myers-Briggs Inventory, whose items and scoring keys are explicitly dictated by Jungian theory.

The manual for the instrument is in preparation. Extensive research is in process under the direction of Educational Testing Service on the

¹Educational Testing Service, Annual Report. Princeton, New Jersey: Educational Testing Service, 1956-1957; 1957-1958; 1958-1959; 1959-1960.

²Lee J. Cronbach, Essentials of Psychological Testing. Second Edition. New York: Harper & Brothers, Publishers, 1960, p. 469.

reliability and validity of the instrument, on the question of unimodality or bimodality of the paired dimensions, on fakability, social desirability aspects, relationship of Jungian theory with other theoretical conceptions, and the establishment of norms. Progress reports on this research are contained in a number of research memoranda, research bulletins, and pre-publication excerpts issued by Educational Testing Service.

The Myers-Briggs Type Indicator* is a group paper-and-pencil test of 109 items (Form E) copyrighted in 1957. Earlier forms were copyrighted in 1943 and 1944. The authors have been more interested in developing a useful instrument than in releasing it for wide-scale use.

The instrument differs from many other apparently similar tests by virtue of its conscious and extensive application of Jung's personality theory. A second distinctive feature is its emphasis on major aspects of personality, thus involving the use of a very small number of basic concepts, and also thereby differing from most other personality tests. Furthermore, emphasis is upon 'normal' rather than 'abnormal.'

The basic theoretical formulation is as follows:

Judgment vs. Perception (J-P). The most fundamental premise of the theoretical formulation underlying the Myers-Briggs is that every time you use your mind for any purpose whatever you perform either an act of perception (becoming aware of something) or an act of judgment (coming to a conclusion about something). Most people gain a good deal more pleasure from one of these than from the other, and their preference may often be detected even in very casual contacts.

The Myers-Briggs actually recognizes two forms of judgment (thinking-feeling) and two forms of perception (sensation-intuition). It also recognizes two common patterns (extraversion-introversion) in which the preferred forms of perception and judgment may be organized, which differ in their complexity and proneness to maladjustment. While it is possible for any person to develop all six of these functions and attitudes at once, it is a statistically very abnormal individual who does. Most personalities can be substantially characterized in terms of their

*Since the manual for the MBTI is not yet available, the discussion of the MBTI in this and the following sections closely parallels material found in D. R. Saunders, Research Memorandum (RM-58-1). Princeton, New Jersey: Educational Testing Service, January, 1958.

preference for one form of judgment, for one form of perception, and for one pattern of organization. Such a trio of preferences places an individual into one of eight basic personality types.

Thinking vs. Feeling (T-F). These are the two forms of judgment. Thinking-judgment is a logical process, aimed at an impersonal finding of fact, and is well-suited to situations which can be encompassed by some propositional system that a particular person understands. Feeling-judgment is a more complicated process of appreciation, reasonable in its way but bestowing personal and subjective values upon the elements of situations too complicated for logical analysis - such as, for most people, in human relations. While most people will use both functions, one is trusted more than the other through gradual development. Thinking-judgment concentrates on truth or falsity, while feeling-judgment emphasizes like or dislike.

Sensation vs. Intuition (S-N). These are the two forms of perception. Sense-perception is the direct awareness of something by way of one or more of the senses. Intuitive-perception is indirect perception by way of the unconscious, accompanied by ideas or associations which the unconscious adds to the sensations from outside the organism. These unconscious contributions run a wide gamut from the merest masculine 'hunch' or feminine 'intuition' through the whole range of semi-original and original ideas. While one makes some use of both sorts of perception, one of them is likely to gain a priority in the individual personality. A sense-perceptive person is chiefly interested in the actuality around him. The intuitive is too much interested in the possibilities that occur to him to give a great deal of notice to the actualities.

Extraversion vs. Introversion (E-I). These terms refer to the two basic attitudes or patterns of organization, in the original Jungian sense. There is, therefore, no connotation of reproach or neuroticism with the concept of introversion. Extravert refers to an attitude in which one's main points of reference are external, centered in the outer world of people and things. Introvert refers to an attitude in which one's main points of reference are internal. No one is limited exclusively to either world. A well-balanced introvert can deal ably with the outer world, and a well-balanced extravert can deal effectively with ideas. But the preference for one over the other remains.

Reliability and Intercorrelations

Conventional test statistics applied to these indices appear to yield more than minimally satisfactory results. Results for an unselected group of 146 male subjects not used for any prior item analysis are shown in Table I. Reliabilities were computed from Kuder-Richardson Formula 21, while the correlations are based on the usual Pearson product-moment formula.

TABLE I
CONVENTIONAL RELIABILITIES AND INTERCORRELATIONS
OF THE MYERS-BRIGGS INDICES FOR 146 MALES*

	E-I	S-N	T-F	J-P
E-I	.88			
S-N	.16	.86		
T-F	-.16	.13	.78	
J-P	.19	.49	.14	.82

The extraversion-introversion index is similar to many published scales of 'extraversion' or 'sociability.' However, the test items are unusually free of the implications of maladjustment that are commonly found confounded with the introvert responses.

The sensation-intuition index is distinctively different from any published scale. The thinking-feeling index is strongly correlated with the sex of the subject. Feeling is more characteristic of females. However, this index seems to be distinctively different from masculinity-femininity scales. The other scales are uncorrelated with sex.

The judgment-perception index is correlated .49 with S-N. None of the other intercorrelations are significant at the .01 level. Similar correlations of J-P with S-N have often been observed in groups of young men or women, but not in groups of persons over thirty years of age. This correlation of S-N and J-P in young groups is believed to arise from a differential rate of development of judgment for S and N individuals, with the intuitives being the slower. It has been particularly difficult to construct an index for J-P that is free of this correlation and, especially for females, that is free of a correlation with age. However, the data for older groups make it clear that J-P must be conceived as having no important zero-order correlation with another index. The judgment-perception index does not appear to be similar to other published scales, and it is the most original contribution of the Myers-Briggs Type Indicator.

*Saunders, RM 58-1. The calculations are based on an earlier form of the MBTI whose relationship to the current form is unknown.

Scoring

The four so-called 'type indices' were not constructed for the purpose of measuring the degree to which a subject has a particular trait, although such statistics look very promising. The intended purpose of each index is to indicate the subject's basic preference between the opposites in question, the preference being inferred from whether he falls on one side or the other of a designated critical score. The item responses have been chosen and weighted in such a way that this critical score is very nearly at zero, whenever the total weights of a subject's two complementary points are subtracted from one another. Such difference scores are sufficient for many purposes, and are the basis of the tentative values in Table I. The indices should be regarded as deliberately 'peaked' tests whose goal is to discriminate optimally only at a particular score level, namely, zero. Thus the Myers-Briggs provides four basic scores. Following a procedure described by Cattell¹ indeterminate scores are distributed equally among the possible alternatives.

It is furthermore necessary to recognize that the items comprising any particular index are not factorially homogeneous; it is expected that from three to five factors would emerge from an analysis on an unselected population of the contents of any one of the indices. This is further complicated by the expectation that the factorial description of a number of the items will change systematically when the analysis is performed for groups representing the different types of personality which the Myers-Briggs itself is designed to identify.

Table II shows the relative frequencies of the eight basic types (excluding J-P) for men and women separately, and a hypothesized relationship with Spranger's types. It will be seen that the percentages falling into the separate types vary widely; ESF is the most common in unselected populations, while in the same unselected populations INT is rarest and is especially rare among women. The inequality of these proportions stems from the fact that none of the three basic type indices divides the general population at the median score; instead, such a population is about 75% E, 80% S, and 60% T for men, and about 75% E, 80% S, and 20% T for women.²

¹Raymond B. Cattell, Personality and Motivation Structure and Measurement. Yonkers-on-Hudson, New York: World Book Co., 1957, p. 420.

²Isabel Briggs Myers, private communication, February 2, 1962. After this study was completed, Myers stated that 75% S for both men and women is a more correct figure, and that Saunders' figure above is in error. While this correction would have a slight effect on some of the calculations in the present study, examination showed that the results of this study would not be affected.

TABLE II
PERCENTAGE OF TYPES FOR MEN AND WOMEN SEPARATELY
FOR THE TOTAL UNSELECTED POPULATION *

Type	Percentage		Type Designation
	Men	Women	
IST	12	4	Pragmatic Economic
EST	36	12	Manipulative Economic
ISF	8	16	Aesthetic
ESF	24	48	Social
INT	3	1	Theoretical
ENT	9	3	Political
INF	2	4	Mystical Religious
ENF	6	12	Exo-centric Religious

RECRUITMENT OF THE SAMPLES

In order to test the hypotheses of the study, a sample was selected of 1,084 subjects at five distinct levels in the field of education: students in the minimum one-year program in education, education students in the degree program, teachers in service, principals, and superintendents. This number of subjects was considered adequate to test the hypotheses involved. Future followup studies were kept in mind when samples were selected, particularly with respect to dropouts from the profession, rated effectiveness, and promotion to administrative positions.

The size of each sample population was governed by two factors. First, a sufficient number of cases in each sample was needed to make tests of statistical significance possible. This requirement made a minimum sample of at least thirty desirable, although the flexibility of

*Saunders, RM 58-1. These figures are derived from an earlier form of the MBTI whose relationship to the current form is unknown, and are probably not based on any precisely defined sample of the general population.

the major instrument makes it possible to work with smaller groups, since each of the four parts of the individual score may be taken separately for statistical study. The nature of the study also made it mandatory to consider cost factors, availability of subjects - particularly of teachers and administrators - and convenience. These restrictions on the nature of the respective samples affect the extent to which conclusions and generalizations may be made from the results of the study.

In consideration of the above factors governing the size of the respective samples, the following sample populations were recruited:

- (a) Minimum Program students: 216
- (b) First Year Degree Program students: 460
Upper-level Degree Program students: 110
- (c) Teachers in service: 169
- (d) Principals: 63
- (e) Superintendents: 66

While it is true that the three sample populations of education students were to some extent a captive audience, all students asked to participate in the study did so without exception. The effect which this circumstance may have had upon student responses to test items is unknown.

Participation by the principals and teachers of the school system involved was solicited first at the superintendent and board level, next from the principals' association, and finally from each individual staff. With the exception of three teachers in one school staff who declined to participate, all others in the twelve school staffs involved agreed

to participate. However, several teachers were not tested due to prolonged illness or because they were part-time or substitute teachers, and thus were not available at the time of testing. Participation by those solicited exceeded 98 per cent of the total, and it is assumed that the results of the study would not be affected seriously by the fact that participation was not unanimous.

Five female principals participated in the study. Of the 56 male principals solicited at the Fifth Annual Leadership Course for Principals, Edmonton, July, 1960, a total of 44 participated in the study. Since the nature of this sample at the outset made generalizations to other principals doubtful, and since the study is exploratory, there seemed to be no compelling reason to discard the sample due to the fact that full participation had not been achieved. Three male principals who were present when the sample of superintendents were tested, and the male principals of the school system tested, were added to the sample population of principals, making a total of 58 male subjects.

All superintendents solicited at the Short Course for Superintendents, Banff, May, 1960, participated in the study, except for several part-time registrants who were not available at the time of testing.

Scheduling the testing posed some difficulty with some of the sample populations. The six classes of minimum program students were tested under the supervision of the writer over a two-day period, in which regular class periods were utilized. Seven absentees were tested individually during the following week.

It was found that the First Year Degree Program students could not

be tested conveniently on a class basis since they were registered in a great variety of courses. Arrangements then were made to test as many of this group as possible immediately after a semester examination period. No difficulty was experienced with this arrangement except that a time conflict prevented approximately forty students from participating at the designated time. Since the remaining 460 students formed the largest of the sample populations, no attempt was made to secure the participation of those who were unable to participate initially. The students tested were assumed to be representative of the class as a whole.

The sample population of 110 Upper Level Degree Program students consisted of two divisions of an educational psychology class, and these subjects were supervised by their respective instructors, each of whom had previously written the test instrument. The sample was considered large enough to be representative of this class level in the Faculty of Education.

Some difficulty was experienced in testing the twelve school staffs due to noon hour supervision assignments, staggered schedules, and due to the fact that a number of teachers went home during the lunch hour on a regular basis. However, at a mutually agreeable time, generally during the noon hour, the writer supervised the testing for approximately ninety per cent of the teachers. Due to the voluntary nature of the study and to the interest expressed by the teachers in the study, copies were left with the principal to be completed and sealed in an envelope by the teachers not present at the time the remainder were tested.

Careful note was made of those teachers who completed the instruments privately to see whether differences occurred which may have been due to this circumstance. Examination of these papers, however, revealed no apparent differences in any way which differed from those teachers who wrote under supervision, and therefore these results were included in the study.

The sample of principals was supervised by the writer in one one-hour session, and no difficulty was experienced. The facilities available did not permit such an arrangement for the sample of superintendents. Each of six groups was supervised by a member of the university faculty who was given instructions for this supervision, and who was asked to report any conditions which may have adversely affected the results of the testing. The writer checked periodically with each of the supervisors during the testing and no conditions affecting test results were reported.

None of the instruments was timed, and subjects required from thirty to fifty minutes to complete the instruments. In all cases an hour was allotted and all were able to finish comfortably within this amount of time. Eleven of the twelve school staffs were tested during the noon hour and in most cases the pupils were dismissed approximately ten minutes early to allow ample time for lunch and for participating in the study. One staff was tested at the close of the school day during the time allotted for a regular staff meeting.

Written instructions were included with the test instruments and no difficulty was experienced by the subjects in following the directions. In some cases verbal explanations were given as requested by subjects,

without, however, mentioning any specific hypotheses of the study.

At the request of the principals' association, teachers were assigned a code number by the respective principals in order to guarantee the anonymity of the participants. According to the test instructions, participants were permitted to omit test items if they could not decide on a clear alternative, since the results did not depend on a quantitative score. Where respondents omitted questionnaire items, the subjects were included in the sub-studies when they had responded, and were omitted from this phase of the study, if they had failed to respond. The number of omitted responses was small, and it was assumed that the above procedure would not distort the analysis of data.

The data for each sample population were entered on Keysort cards, and the variables involved in the testing of the hypotheses of the study were punched to permit rapid and accurate sorting.

CHAPTER IV

DESCRIPTION OF THE SAMPLE

Research with teachers and administrators in service is relatively new and sparse in Canada. For this reason some of the sample populations were selected even though there was no way of determining whether or not they were representative of larger populations. For this study it was assumed that it would be desirable to attempt to gain insights from such sample populations in the hope that the study would assist in paving the way toward more sophisticated and rigorous research designs and more representative samples in the future.

Strictly speaking, all the samples of this study are sample populations. While the word 'sample' is used in the study for brevity and convenience, it is understood that 'sample population' is the more correct technical term. Thus any generalizations made from the analysis of the sample populations to larger populations are, of course, highly tentative and subject to confirmation.

Of the 1,085 subjects tested in the study, only one case had to be discarded, leaving a total of 1,084 cases. The one test answer sheet was discarded because the subject had not matched his responses according to the numbers of the questions, and it was not possible to reconstruct his intended answers.

The purpose of this chapter is to furnish more detailed descriptions of the sample populations involved in the study. Table III lists

the subjects by sample population and sex.

TABLE III
DISTRIBUTION OF SAMPLE POPULATIONS BY SEX

Sample Population	Male	Female	Total
Minimum Program Students	71	145	216
I Year Degree Students	166	294	460
Upper Level Degree Students	62	48	110
Teachers in Service	46	123	169
Principals	58	5	63
Superintendents	66	0	66
Total	469	615	1,084

Description of Minimum Program Students*

The median age of the 71 Minimum Program (Junior Elementary) male students was 20, while that of the 145 females was 18. The range in age for males was from age 17 to 46, and from 16 to 51 for females. One-third of the total sample was age 20 and older, compared with less than one-fifth the previous year when 292 such students were enrolled in the minimum program. The trend appears to be toward younger students entering the degree route in education, and an increasing proportion of older males and females entering the minimum program. These older students either do not qualify academically for the degree program, or they do

*Data furnished by J. E. Simpson, Supervisor, Junior Elementary Program students, University of Alberta, 1961.

not wish to commit themselves for more than one year of training at the outset. The minimum program students are placed in elementary and junior high school positions.

The occupation of almost half the fathers (46.6%) was farming, and relatively few fathers were professional people. The median number of siblings was three, with a range of zero to fourteen. Less than one-fifth of the students obtained their schooling in a city, the great majority having been education in a rural, village or town setting. These students listed mathematics, English, and social studies most frequently as academic areas in which they were particularly interested. All but eight of the students had travelled considerably in Canada, and 63 in the United States. Seventeen had travelled abroad. The principal reason stated for choosing the teaching profession was a liking for and an interest in children.

The students listed a total of 85 clubs in which they had held membership previously, some students belonging to as many as six simultaneously. A considerable number, however, indicated no membership in any such organization. The majority of students who had joined clubs had served in some executive position. For hobbies, special interests, or abilities, a total of 436 items was listed, of which reading and sports predominated. It may be assumed that these students were considered important people in their local communities.

During the course of the academic year, four of the 216 students - two males and two females - dropped out. Of the remaining 212 students, 102 had full senior matriculation standing - 29 males and 73 females -

while 110 students had not yet achieved this standing.

Description of First Year Degree Program Students

Of the 460 first year degree program students tested, 166 were males and 294 were females. The age range of the males for this sample was from age 16 to age 45 with 9 subjects not specifying their age. The median age for males was 19, and 68.8 per cent of the males were age 18 to 20. A total of 25.5 per cent of the males were age 21 and older, while the remainder were younger than 18 or did not report their age.

The age range for females was from 16 to 45 with a median age of 18. A total of 86.4 per cent were age 17 to 19. In contrast to the males, only 4.8 per cent of the females were age 21 and older. Of the 460 females, 15 did not report their age.

A change of vocation was reported by 35 males (21.6%). In four cases this information was not reported. Only 17 females (5.8%) reported a change of vocation. Males listed 25 different vocations from which they had changed, and only four of these vocations were listed by more than one subject: engineering 6, bank clerk 3, farming 3, and accounting 2. The 17 vocational changes reported by females comprised nine vocations, two of which were listed by more than one subject: secretarial work 7, and nursing 4.

A total of 28 males (17.0%) and 24 females (8.2%) stated a preference to spend the greater amount of their time in administration in their future professional work, in contrast to the majority who stated a preference to spend most of their time in a teaching setting.

Table IV lists the stated preferences for teaching level by the 452 first year degree program students who reported on this item. Three-fourths of the males aspire to teaching on the senior high school level, which lends credence to the often expressed observation that teaching by males at the elementary and junior high school level is looked upon as a stepping stone to senior high school level teaching. Few male students, however, expressed an aspiration for college level teaching.

TABLE IV
TEACHING LEVEL PREFERENCE OF FIRST YEAR STUDENTS

Preferred Level	Males		Females	
	Number	Per cent	Number	Per cent
Elementary	7	4.3	111	38.2
Junior High School	22	13.6	60	20.7
Senior High School	120	74.3	108	37.3
College	13	7.8	11	3.8
Total	162	100.0	290	100.0

Among the female students a curious bimodality in teaching level preference occurred. Apparently some female students felt better qualified for the elementary level, while an equal number aspired to high school level teaching. The possible relationship of preference-type to this bimodality will be examined in the analysis of data. Table IV reveals striking sex differences in teaching level preference.

The students of this sample population were asked whether they

preferred to teach all or most subjects in one grade, or whether they preferred to concentrate on a single subject matter field. A total of 26 males (16.1%) and 113 females (39.0%) stated the preference for teaching all or most subjects in one grade. The concept of specialization, particularly among males, appeared to have been instilled, rather than the concept of being generalists in the school setting. This response by males is related to their strong preference for teaching on the senior high school level.

With respect to academic majors chosen, a great variety was listed by each sex. These choices were grouped in Table V. The males have

TABLE V
CHOICE OF ACADEMIC MAJOR OF FIRST YEAR STUDENTS BY SEX

Academic Major	Males		Females	
	Number	Per cent	Number	Per Cent
Sciences	45	27.8	28	9.7
Mathematics	41	25.4	27	9.3
Social Sciences	37	22.8	32	11.0
Physical Education	15	9.3	12	4.1
English	7	4.3	35	12.1
Foreign Languages	5	3.1	21	7.2
Fine Arts	4	2.4	16	5.5
Business Education	1	0.6	4	1.4
Household Economics	0	0.0	15	5.2
Not specified	7	4.3	100	34.5
Total	162	100.0	290	100.0

centered heavily (76.0%) on three subject matter areas: the sciences,

mathematics, and the social sciences. While about one-third of the females (34.5%) did not specify a major, the remainder are distributed more evenly over a greater variety of academic majors in contrast to the male distribution. Of the 100 females who did not state a preference for an academic major, 93 also listed a preference for elementary grade level teaching. Thus they perhaps had no immediate plans to complete the full degree program.

Description of Upper Level Degree Program Students

The 110 upper level students of this sample population consisted of 48 males and 43 females at the third year degree program level, and the remaining 14 males and 5 females were classified at various other points beyond the first year level. The third year students tested constituted 58.3 per cent of the students registered at this level.

Six males and four females did not report their age. Of the remainder, the median age for males was 23 and for females it was age 21. The age range for males was from 19 to 40, while that of the females was from 19 to 41. Eleven males reported changing from ten different vocations. Three females reported changing from three other vocations. A total of 21 males (33.9%) indicated a preference in their future professional work to spend the greater amount of their time in administration. Three females (6.2%) indicated the same preference with respect to administration.

Choice of academic major is grouped in Table VI. A total of 79.2 per cent of the males selected one of four majors: the sciences, physical

education, mathematics, or the social sciences. Of the females, 20.9 per cent listed no academic major, which may be indicative of the fact that they had no immediate plans to continue through the degree program. More than one-third of the females (35.3%) chose either English or household economics as their major.

TABLE VI
CHOICE OF ACADEMIC MAJOR OF UPPER LEVEL STUDENTS BY SEX

Academic Major	Males		Females	
	Number	Per cent	Number	Per cent
Sciences	20	32.4	5	10.4
Physical Education . .	13	21.0	2	4.2
Mathematics	10	16.1	5	10.4
Social Sciences . . .	6	9.7	5	10.4
English	3	4.8	9	18.7
Fine Arts	3	4.8	2	4.2
Foreign Languages . .	2	3.2	2	4.2
Industrial Arts . . .	2	3.2	0	0.0
Business Education . .	1	1.6	0	0.0
Household Economics .	0	0.0	8	16.6
Not specified	2	3.2	10	20.9
Total	62	100.0	48	100.0

Subjects were asked whether they preferred to teach all or most academic fields in one grade, or whether they preferred to concentrate on a single subject matter field. Five males (8.1%) and 23 females (47.9%) stated a grade preference, the remainder preferring to specialize.

Table VII lists the stated preferences for teaching level by this sample population. The pattern is very similar to that of the first year

degree program students, with the males showing a strong preference for senior high school level teaching, and the females again showing two strong preferences, one for the elementary level, and the other for senior high school level teaching.

TABLE VII

TEACHING LEVEL PREFERENCE OF UPPER LEVEL STUDENTS BY SEX

Preferred Level	Males		Females	
	Number	Per cent	Number	Per cent
Elementary	4	6.5	20	41.7
Junior High School	19	30.7	9	18.7
Senior High School	34	54.8	15	31.3
College	4	6.5	3	6.2
Not stated	1	1.6	1	2.1
Total	62	100.0	48	100.0

The 786 education students in the three sample populations represented 50.8 per cent of the 1,547 students registered with the Faculty of Education, University of Alberta, 1960-1961. This included 45.4 per cent of all the males registered and 55.0 per cent of all the females.*

Description of Teachers in Service

The sample population of 169 teachers in service consisted of 46

*Data furnished by the Office of the Dean, Faculty of Education, University of Alberta, 1961.

males and 123 females, and constituted the twelve school staffs on the elementary and junior high school level of one suburban school district. While the purpose of the selection of this sample population was partly for convenience and for an adequate number of subjects, it was also considered that profitable followup studies could be made of this group apart from the study at hand.

Three of the schools involved conducted Grades 1 through 6, one school taught Grades 1 through 7, six schools accommodated Grades 1 through 8, and the remaining two schools were combined elementary and junior high schools, Grades 1 through 9. Teaching staff size varied from 7 to 23, and there were 11 male principals and 1 female principal.

Table VIII lists teachers by age range and sex. The age range for

TABLE VIII
AGE RANGE OF TEACHERS BY SEX

Age Range	Males	Females
Under 30	13	28
30 - 39	11	27
40 - 49	12	36
50 and over	10	31
Not reported	0	1
Total	46	123

male teachers was from 21 to 61 with a median age of 36.5 years. Female teachers ranged in age from 19 to 66 with a median age of 42.

The total number of years of teaching experience for males ranged

from 1 year to 37 years, with a median of 11 years of teaching experience. The median teaching experience for female teachers was the same, and they reported a range of 1 to 36 years of experience. Both males and females reported a median of 5 schools in which they had had teaching experience on a regularly employed basis. Males reported experience in 1 to 11 schools except for two teachers who reported 27 and 28 schools respectively. The range of schools for females was from 1 to 12.

Table IX indicates teaching subjects in which teachers had the most academic preparation. For the males, 23 taught all or most subjects

TABLE IX
AREAS OF MOST ACADEMIC PREPARATION BY SEX

Academic Area	Males	Females
Social Sciences	13	6
Sciences	8	0
Mathematics	7	2
Physical Education	4	1
English	3	19
Industrial Arts	2	0
Fine Arts	1	5
Household Economics	0	4
None reported	8	86
Total	46	123

in one or several grades, while the remaining 23 taught one or several subjects only. A total of 115 female teachers taught one or several grades, and the remaining 8 teachers taught one or several subjects only. A total of 27 males and 52 females reported that they were now teaching

the subject in which they had the most academic preparation. Negative replies to the same question were received from 12 males and 17 females, while 7 males and 54 females did not respond to the question, due largely to the fact that no academic major had been developed in their previous university training.

The number of undergraduate and graduate courses taken for the teaching subject in which teachers had the most academic preparation is reported in Table X. A total of 9 male teachers and 85 female teachers

TABLE X

NUMBER OF COURSES TAKEN BY TEACHERS FOR PREPARATION
IN MAJOR TEACHING SUBJECT

Number of Courses	Males	Females
1	2	9
2	3	9
3	5	10
4	10	6
5	3	4
6	5	0
7	2	0
8	2	0
More than 8	5	0
No response	9	85
Total	46	123

did not respond to this questionnaire item which reflects the fact that a large proportion of the teachers possessed two years of university level training or less. A total of 33 males received the major part of their

training at the University of Alberta, 4 males attended other Canadian universities, and 9 received their training at various normal training institutions. For the females, 67 received the major portion of their training at the University of Alberta, 4 at other universities, and 52 at various normal schools.

Males tended to secure more university training than females. The number of years of training for males ranged from 1 to 6 with a median of 3.5 years. The females reported from 1 to 4 years of training, and 70 subjects had one year of training only. Table XI lists years of training by sex, rounded to the nearest year.

TABLE XI
YEARS OF UNIVERSITY TRAINING BY SEX

No. of Years	Males	Females
1	12	70
2	7	30
3	4	12
4	19	11
5	2	0
6	2	0
Total	46	123

Teachers were asked whether they preferred to teach all or most subjects in one grade, or to concentrate on a single subject matter field. The subject preference was indicated by 36 males and 25 females; 8 males and 97 females preferred teaching a grade; and 2 males and 1 female did

not respond to the question.

Table XII lists the responses of teachers for the grade level at which they would prefer to teach. A strong sex difference is apparent.

TABLE XII
TEACHER PREFERENCE BY SEX FOR GRADE LEVEL TAUGHT

Level Preferred	Males	Females
Elementary	13	102
Junior High School	21	11
Senior High School	10	6
College	0	0
No response	2	4
Total	46	123

Since educational administrators are recruited from the ranks of the teachers, the question was asked whether in their future professional work the teachers would prefer to spend the greater amount of their time in teaching or in administration. For the males, 14 (30.4%) stated a preference for administration, while 3 (2.4%) of the females stated this preference.

A total of 10 males and 12 females reported that they had changed to teaching from another vocation. The 10 males reported changing from 7 kinds of vocations, most of which were semi-skilled jobs. Half the 12 females reported changing from some kind of secretarial position, and the remainder reported changes from 5 other vocations.

The male teachers possessed seven kinds of teaching credentials,

and the females had nine different kinds. A distribution of the credentials by sex is found in Table XIII.

TABLE XIII
TEACHING CREDENTIALS BY SEX

Kind of Credential	Valid for Grades	Males	Females
Letter of Authority	---	1	3
Junior Elementary	1-9	9	49
Standard Elementary and equivalent credential	1-9	2	17
Elementary and Intermediate . .	1-10	3	16
Standard Secondary	4-11	5	4
Standard Elementary and Standard Secondary	1-11	0	5
Professional and equivalent . .	1-12	26	29
Total		46	123

Compared with the median teacher in the Province,¹ the median teacher of the sample population of this study appeared to be quite similar. The proportion of males was 27.1 per cent compared with 27.5 per cent in the Province. The median male was a year younger and the median female was about three years older than the provincial median ages respectively. The male had 3.5 years of university training compared with 3.1 years in the Province. The median female in both cases had one year

¹R. S. MacArthur and S. A. Lindstedt, The Alberta Teacher Force in 1957-58. Monographs in Education No. 3. The Alberta Advisory Committee on Educational Research. Edmonton: University of Alberta, 1960, p. 60.

of training. Although certification was classified differently, no appreciable difference was evident. The median male in each case had 11 years of teaching experience, while the median female had one and a half years more than the provincial median of 9.5 years.

Description of Principals

In addition to the 58 male principals included in this sample population, data were secured from five female principals. However, since there are sex differences in the scoring of the major instrument used in the study, these data were not included, the number of female principals being too small to permit adequate analysis. Five vice principals who attended the leadership course for principals were included in the sample population of principals, since it was assumed that they were slated for early promotion to a full principalship.

The age range of the principals was from 23 to 64 years with a median age of 41.5 years. The number of years spent in full-time educational positions varied from 3 to 36 years with a median of 16 years, 5 more than the median experience of the male teachers. Only three of the principals had held their present position for more than 10 years. The median years in the present position for the principals reporting was 3 years, and the range was from zero years to 21 years. Thus the median principal of this sample population is about 42 years old, has 16 years of experience in education, 8 of which are in some kind of administrative capacity, and he has held his present position for the past three years.

Eight of the principals possessed a master's degree and 43 had an undergraduate degree. Six principals had no formal degree and one subject

did not respond to this questionnaire item.

The principals reported eleven different grade combinations in their respective schools. The most frequent combination was all or part of the elementary and junior high school grades, which represented 24 schools; next came combinations of elementary-junior-senior high school grades, which accounted for 16 schools; elementary grades only comprised 13 schools; junior-senior high school grades, 3 schools; senior high school grades only, 1 school; and one principal did not report this information.

A wide variation was reported in the size of the respective schools. The number of classrooms ranged from 2 to 40 with a median of 14 classrooms. Seven principals taught full-time in addition to fulfilling duties as a principal. Three principals devoted full-time to administrative duties. The remaining principals had from one to 35 hours per week free from teaching duties, with a median of 7.5 hours per week for administrative duties for all principals reporting this item.

Only five principals reported clerical assistance amounting to one full-time clerk or more; 25 principals received no clerical assistance. The amount of clerical assistance for the remaining 14 principals who reported this information varied from 3 to 28 hours per week.

Description of Superintendents

As indicated in the definition of terms, an educational administrator was included under the term 'superintendent' if he reported educational responsibilities on a system level or provincial department of education level, whereas a principal was the administrative head of a

single school or sometimes of several schools. The distribution of superintendents by province is found in Table XIV.

TABLE XIV
DISTRIBUTION OF SUPERINTENDENTS BY PROVINCE

Province	Number
Ontario	21
Alberta	17
Saskatchewan	9
Manitoba	5
British Columbia	4
Quebec	3
Atlantic Provinces	7
Total	66

The heterogeneity of the sample population is indicated by the variety of titles of these men: supervisor, inspector, superintendent, assistant superintendent, coordinator, director, and administrative assistant. The sample population of 66 subjects consisted of 6.8 per cent of the 978 such positions listed in the Canadian Almanac & Directory for 1960.¹ In addition to the 63 superintendents tested at the 1960 Short Course for Superintendents at Banff, Alberta, three superintendents who served as consultants for the 1960 Leadership Course for Principals were included in the sample population.

¹Canadian Almanac & Directory for 1960. Toronto: The Copp Clark Publishing Co., Limited, 1960, pp. 623-630.

The superintendents of the sample population ranged in age from 28 to 63 with a median age of 48 years. The superintendents reported that they had held positions in the field of education ranging from 4 to 40 years. The median number of years in education was 26 years. Years of administrative experience varied from none to 31 years with a median of 14 years. One subject was scheduled to begin his new position after the conference at which the data were secured, and the remainder of the subjects had held their present position from 1 to 22 years, with a median amount of 4 years. Eight superintendents did not respond to the above questions.

The median superintendent, compared to the median principal, thus is 6 years older, has 10 more years of experience in education, has 6 more years of administrative experience, and has held his present position one year longer.

A total of 37 superintendents reported no assistants, while another 17 superintendents had from one to three assistants. Four superintendents had respectively 9, 13, 38, and 96 assistants or staff members, and the remaining 8 superintendents did not report this information.

The number of teachers served by each superintendent in some manner ranged from 45 to 5,000 with a median of 141.5. The number of principals serving under the respective superintendents varied from 2 to 1,000 with a median number of 14. Four superintendents had positions which did not require travel. Others reported travel requirements from 1,000 to 25,000 miles annually, with a median mileage of 10,000.

Only two superintendents had no formal academic degree; 39 had one

or several undergraduate degrees; 24 had one or more graduate degrees.

One subject did not report this item.

CHAPTER V

ANALYSIS OF DATA AND RESULTS: SELECTION FACTORS

The most fundamental premise on which this study is based is that personality preference-type is related to the initial choice of teaching as a profession, and that this choice which reflects preference-type is also related to other factors which may be of significance to administrative aspects of education. In Chapter I twelve hypotheses were developed from a theory applied to the education vocation. In this chapter the methodology of testing these hypotheses and the analysis of the data are described.

In order to test the hypotheses of the study, four personality dimension scores on the nominal level were secured for each subject. These scores of the Myers-Briggs Type Indicator, singly and grouped, and linked with the variables secured from the other instruments, furnished the bases for the statistical tests of significance applied to each of the hypotheses.

The first seven of the twelve hypotheses predicted that the various levels within the teaching profession which are under consideration in this study tended to form a pyramid of preference-types, in the sense that characteristic types at one level may no longer be characteristic at the next higher level.

HYPOTHESES TO TEST A THEORY OF TEACHER AND ADMINISTRATOR SELECTION

Hypothesis #1

The first hypothesis stated that students in education differ significantly in the distribution of personality preference-types from the distribution of types found in the general population. Sex differences in the distribution of test scores required that male and female results be analyzed separately. Using the χ^2 * one-sample test, each of the three sample populations of education students was taken separately to test the hypothesis that there was no significant difference between these sample populations and the general population, and that differences which did occur could be attributed to chance fluctuations.

Expected frequencies, furnished by Educational Testing Service, are listed in Chapter III for the general population by sex. In general, the procedure followed in this phase of the study was similar in nature to that of Cattell and Drevdahl¹ who compared the personality profiles of researchers, teachers, and administrators with that of the general population, using figures for the general population which were uncorrected for age.

The number of cases in each of the sixteen cells of the MBTI was too small in some cases to permit an analysis on that basis, though this would be highly desirable for larger samples. For this reason the attitudes

*For convenience, the symbol ' χ^2 ' is used in this study to refer to chi-square and to chi-square tests.

¹R. B. Cattell and J. E. Drevdahl, "A Comparison of the Personality Profile (16 P.F.) of Eminent Researchers with that of Eminent Teachers and Administrators, and of the General Population," The British Journal of Psychology, XLVI (November, 1955), 248-261.

(extraversion-introversion and judgment-perception) were paired in four possible combinations for analysis: I-J, I-P, E-P, and E-J. A similar procedure was followed with the functions (sensation-intuition and thinking-feeling): S-T, S-F, N-F, and N-T. The basic data for the tests of significance for the first seven hypotheses of this study are found in Table XV for males, in Table XVI for females, and a summary table for both sexes, Table XVII.

The results of the analysis for males of the general population and for the males of the three sample populations of education students are found in Table XVIII with respect to the first hypothesis. One basis of analysis was in terms of the patterns of positive cells (where the observed frequency exceeds the expected frequency) and of negative cells (where the observed frequency is less than the expected frequency). Accepting for alpha the conventional .05 and .01 levels of significance, all comparisons made between the personality dimensions of the male general population and the male education student sample populations differed at a significant level.

Minimum Program Male Students

Attitude differences of this sample population compared with the general population were significant beyond the .001 level. The greatest difference was the unexpectedly large number of subjects who possessed the introversion-judgment dimension in their personality structure - more than three times the expected frequency. The four preference-types which have introversion-judgment in common are described as possessing depth and

TABLE XV

DISTRIBUTION OF PREFERENCE-TYPES FOR ALL MALE SAMPLES

Type	Gen. No.	Pop. p.c.	Min. No.	Prog. p.c.	I Yr. No.	Prog. p.c.	Upper No.	Level p.c.	Teachers No.	Teachers p.c.	Principals No.	Principals p.c.	Supts. No.	Supts. p.c.
ISTJ	---	6.0	9	12.7	30.2	18.2	7.5	12.1	11	23.9	6	10.3	8	12.1
ISFJ	---	4.0	9	12.7	8.2	5.0	4	6.5	2	4.3	4.5	7.8	7.5	11.4
INFJ	---	1.0	3	4.2	8.5	5.1	3	4.8	2	4.3	5.5	9.5	3.5	5.3
INTJ	---	1.5	7.5	10.6	4	2.4	0	0.0	1	2.2	5.5	9.5	5	7.6
ISTP	---	6.0	2.5	3.5	5.5	3.3	3	4.8	1.2	2.7	0	0.0	0	0.0
ISFP	---	4.0	1	1.4	9	5.4	3	4.8	1.2	2.7	0	0.0	1	1.5
INFP	---	1.0	2	2.8	5	3.0	3	4.8	2.2	4.9	2.5	4.3	1	1.5
INTP	---	1.5	0	0.0	5.5	3.3	2	3.2	1.2	2.7	0	0.0	1	1.5
ESTP	---	18.0	0	0.0	9.8	5.9	4.5	7.3	0	0.0	0	0.0	0.5	0.8
ESFP	---	12.0	1	1.4	4.2	2.6	1	1.6	1	2.2	1	1.7	2	3.0
ENFP	---	3.0	3.5	4.9	8.2	5.0	2	3.2	0	0.0	1	1.7	5	7.6
ENTP	---	4.5	4.5	6.3	3.8	2.3	3.5	5.6	2	4.3	0	0.0	2	3.0
ESTJ	---	18.0	14.5	20.4	34.2	20.6	14.5	23.4	11	23.9	13.8	23.7	13	19.7
ESFJ	---	12.0	9.5	13.4	20.2	12.2	6	9.7	5	10.9	6.2	10.8	8.5	12.9
ENFJ	---	3.0	1	1.4	6	3.6	3	4.8	1	2.2	3.2	5.6	3.5	5.3
ENTJ	---	4.5	3	4.2	3.5	2.1	2	3.2	4	8.7	8.8	15.1	4.5	6.8
IJ	---	12.5	28.5	40.2	51	30.7	14.5	23.4	16	34.7	21.5	37.1	24	36.4
IP	---	12.5	5.5	7.7	25	15.0	11	17.6	6	13.0	2.5	4.3	3	4.5
EP	---	37.5	9	12.6	26	15.8	11	17.7	3	6.5	2	3.4	9.5	14.4
EJ	---	37.5	28	39.4	64	38.5	25.5	41.1	21	45.7	32	55.2	29.5	44.7
ST	---	48.0	26	36.6	79.8	48.0	29.5	47.6	23.2	50.5	19.8	34.0	21.5	32.6
SF	---	32.0	20.5	28.9	41.8	25.2	14	22.6	9.2	20.1	11.8	20.3	19	28.8
NF	---	8.0	9.5	13.3	27.8	16.7	11	17.6	5.2	11.4	12.2	21.1	13	19.7
NT	---	12.0	15	21.1	16.8	10.1	7.5	12.0	8.2	17.9	14.2	24.6	12.5	18.9
Totals		100.0	71	99.9	166	100.0	62	99.8	46	99.9	58	100.0	66	100.0

TABLE XVI
DISTRIBUTION OF PREFERENCE-TYPES FOR ALL FEMALE SAMPLES

Type	Gen. Pop. No. p.c.	Min. Prog. No. p.c.	I Yr. Prog. No. p.c.	Upper Level No. p.c.	Teachers No. p.c.
ISTJ	--- 2.0	26.5 18.3	20 6.8	3.5 7.3	13 10.6
ISFJ	--- 8.0	19 13.1	35.5 12.1	5.5 11.5	21.5 17.5
INFJ	--- 2.0	11 7.6	15.5 5.3	5 10.4	8.5 6.9
INTJ	--- 0.5	1.5 1.0	10.5 3.6	1 2.1	1 0.8
ISTP	--- 2.0	2 1.4	4 1.4	0 0.0	0.5 0.4
ISFP	--- 8.0	2.5 1.7	11 3.7	3.5 7.3	5 4.1
INFP	--- 2.0	2.5 1.7	17.5 6.0	2.5 5.2	2.5 2.0
INTP	--- 0.5	1.5 1.0	7 2.4	1 2.1	3.5 2.8
ESTP	--- 6.0	3 2.1	8 2.7	0 0.0	1.5 1.2
ESFP	--- 24.0	5.5 3.8	12 4.1	3.5 7.3	5.5 4.5
ENFP	--- 6.0	9.5 6.6	44 15.0	4.5 9.4	4 3.3
ENTP	--- 1.5	0 0.0	9 3.1	2 4.2	0 0.0
ESTJ	--- 6.0	20.5 14.1	32 10.9	5 10.4	13.5 11.0
ESFJ	--- 24.0	28 19.3	33 11.2	7 14.6	22.5 18.3
ENFJ	--- 6.0	5 3.4	25 8.5	2 4.2	11 8.9
ENTJ	--- 1.5	7 4.8	10 3.4	2 4.2	9.5 7.7
IJ	--- 12.5	58 40.0	81.5 27.8	15 31.3	44 35.8
IP	--- 12.5	8.5 5.8	39.5 13.5	7 14.6	11.5 9.3
EP	--- 37.5	18 12.5	73 24.9	10 20.9	11 9.0
EJ	--- 37.5	60.5 41.6	100 34.0	16 33.4	56.5 45.9
ST	--- 16.0	52 35.9	64 21.8	8.5 17.7	28.5 23.2
SF	--- 64.0	55 37.9	91.5 31.1	19.5 40.7	54.5 44.4
NF	--- 16.0	28 19.3	102 34.8	14 29.2	26 21.1
NT	--- 4.0	10 6.8	36.5 12.5	6 12.6	14 11.3
Totals	100.0	145 99.9	294 100.2	48 100.2	123 100.0

TABLE XVII
PERCENTAGE DISTRIBUTION OF TYPE DIMENSIONS
AND MODALITIES BY SEX

Male Samples	E - I	S - N	T - F	J - P	Mode	1 case = p.c.
Gen. Pop.	75.0-25.0	80.0-20.0	60.0-40.0	50.0-50.0	EST-	----
Min. Prog.	52.0-47.9	65.5-34.4	57.7-42.2	79.6-20.3	ESTJ	1.41
I Yr. Prog.	54.3-45.7	73.2-26.8	58.1-41.9	69.2-30.8	ESTJ	0.60
Upper Lev.	58.8-41.0	70.2-29.6	59.6-40.2	64.5-35.3	ESTJ	1.61
Teachers	52.2-47.7	70.6-29.3	68.4-31.5	80.4-19.5	-STJ	2.17
Principals	58.6-41.4	54.3-45.7	58.6-41.4	92.3- 7.7	ESTJ	1.72
Supts.	59.1-40.9	61.4-38.6	51.5-48.5	81.1-18.9	ESTJ	1.52
Female Samples	E - I	S - N	T - F	J - P	Mode	1 case = p.c.
Gen. Pop.	75.0-25.0	80.0-20.0	20.0-80.0	50.0-50.0	ESF-	----
Min. Prog.	54.1-45.8	73.8-26.1	42.7-57.2	81.6-18.3	ESFJ	0.69
I Yr. Prog.	58.9-41.3	52.9-47.3	34.3-65.9	61.8-38.4	ENFP	0.34
Upper Lev.	54.3-45.9	58.4-41.8	30.3-69.9	64.7-35.5	ESFJ	2.08
Teachers	54.9-45.1	67.6-32.4	34.5-65.5	81.7-18.3	ESFJ	0.81

TABLE XVIII

EDUCATION SAMPLES COMPARED WITH GENERAL POPULATION: MALES

Samples: Attitudes	f	IJ	IP	EP	EJ	Total Cases	d.f.	χ^2	P
Min. Prog.	f_o	28.5	5.5	9.0	28.0	71.0	3	56.18	.001
	f_e	8.9	8.9	26.6	26.6	71.0			
I Yr. Prog.	f_o	51.0	25.0	26.0	64.0	166.0	3	66.44	.001
	f_e	20.7	20.7	62.3	62.3	166.0			
Upper Level	f_o	14.5	11.0	11.0	25.5	62.0	3	14.12	.01
	f_e	7.7	7.7	23.3	23.3	62.0			
Samples: Functions	f	ST	SF	NF	NT	Total Cases	d.f.	χ^2	P
Min. Prog.	f_o	26.0	20.5	9.5	15.0	71.0	3	9.65	.02
	f_e	34.2	22.6	5.6	8.6	71.0			
I Yr. Prog.	f_o	79.8	41.8	27.8	16.8	166.0	3	18.29	.001
	f_e	79.8	53.0	13.4	20.0	166.0			
Upper Level	f_o	29.5	14.0	11.0	7.5	62.0	3	8.90	.05
	f_e	29.8	19.8	5.0	7.4	62.0			

concentration plus organization ability. (See Appendix) The proportion of these dimensions among this sample population and the sample population of male teachers in service, according to the data in Table XV, is quite close, 40.2 per cent versus 34.7 per cent.

The negative cell which contributes most to the size of the chi-square is that of extraversion-perception, with approximately one-third the expected frequency found. There is some preliminary evidence which may account for this phenomenon.

First, Myers¹ found that males on the high school level tend as a group to be underachievers if they are perception types, and this is more pronounced in the case of extraversion-perception types than for introversion-perception types. This suggests that relatively fewer perception types may meet university matriculation requirements. Among the minimum program students in education a majority of judgment types had achieved matriculation standing while less than one-third of the perception types had done so.

The problem, however, appears to be very complex, and perception types cannot simply be written off as underachievers or as academically inferior. While perception types are relatively scarce at all the levels in education, according to the data presented in Tables XV and XVI, the opposite appears to be true for students in other university faculties. Creativity is more associated with perception types, according to research

¹Isabel Briggs Myers, Some Findings with Regard to Type, and Manual for Myers-Briggs Type Indicator. Preliminary edition. Swarthmore, Pa.: Author, 1958.

conducted by MacKinnon,¹ and data furnished by Educational Testing Service shows that perception types may be in the majority in the arts and sciences.² This latter finding was supported by data secured for two small classes in arts and sciences at the University of Alberta.³

Introversion-perception preference-types among the minimum program males also fell below the expected frequency for the male general population, while extraversion-judgment types exceeded the number expected. Approximately 80 per cent of the sample population were about equally divided between extraversion-judgment and introversion-judgment preference-types, and Tables XV and XVI show that this proportion is relatively constant at all levels in education measured in this study.

With respect to the functions, differences are less dramatic. All the intuitive preference-types appeared somewhat in excess of expectations. Although sensation-thinking types are the most common among males at all levels in education, these dimensions are also most frequently found in the general male population.

The modal minimum program male, extravert-sensation-thinking-judging (ESTJ), is described on a high school level as follows:⁴

¹Fred T. Tyler, "Competency and Creativity," The ATA Magazine, 40 (February, 1960), 10-14, 30.

²Educational Testing Service reported that among 1,873 male graduate students, 51.0 per cent were perception types. Saunders, RB-57-8, p. 13.

³Data furnished by courtesy of Dr. Howarth, Department of Psychology, University of Alberta.

⁴Isabel Briggs Myers, "Preference-Type as a Key to Personality." Excerpt from pre-publication draft. Princeton, New Jersey: Educational Testing Service, October 9, 1960, pp. 1-20.

Practical, realistic, matter-of-fact, with a natural head for business. Likes the mechanics of things. Not interested in subjects that he sees no actual use for, but can apply himself when necessary. Is good at organizing and running school activities, but sometimes rubs people the wrong way by ignoring their feelings and viewpoints.

First Year Degree Program Males

In the measured attitudes, this sample population followed a pattern almost identical to that of the male students in the minimum program in education. Compared with the general male population, the largest difference observed is again that of introversion-judgment, while extraversion-perception is a negative cell.

In the functions, there are approximately twice the expected number of intuition-feeling preference-types. These dimensions of personality are described respectively as having insight and penetration, originality, grasp of the complicated, and a sympathetic understanding and handling of people, and grasp of group feeling.¹ The modal preference-type, however, was the same as in the previous sample population - ESTJ.

Upper Level Degree Program Males

This sample population differed from the general male population significantly in precisely the same manner as the First Year Degree Program males. This finding seems to support the reliability of the test instrument in showing similar results for two sample populations at two levels of training who are committed to the same general academic program. It should be noted, however, that very much different results could have

¹Myers, op. cit.

been anticipated between the two groups, if, for example, choice of academic major, choice of teaching level, preference for teaching rather than for administration, age, or other factors differed appreciably between the two, and if these and other factors bear some relation to the personality dimensions measured by the test instrument.

Minimum Program Female Students

Table XIX summarizes the findings for female education students compared with the general female population.

In the measured attitudes, the sample of minimum program female students revealed the same characteristics as the male sample populations above. Far more than the anticipated number of students who possessed the introversion-judgment dimensions entered the minimum program, and there were relatively few perception types. The number of students possessing the extraversion-judgment dimensions exceeded the expected frequency. Extraversion-perception dimensions again formed a large negative cell, similar to that found in the male sample populations of education students.

Regarding the functions a different pattern emerged. Contributing most to the significant difference found were the relatively large number of sensation-thinking types, more than double the expected frequency. Although the dimensions of sensation-feeling are modal for the females of this sample population, this cell was negative. The research by Myers¹ again suggests a plausible reason for this. As a group, students with

¹Myers, op. cit.

TABLE XIX

EDUCATION SAMPLES COMPARED WITH GENERAL POPULATION: FEMALES

Samples: Attitudes	f	IJ	IP	EP	EJ	Total Cases	d.f.	X ²	P
Min. Prog.	f _o f _e	58.0 18.1	8.5 18.1	18.0 54.4	60.5 54.4	145.0 145.0	3	118.09	.001
I Yr. Prog.	f _o f _e	81.5 36.8	39.5 36.8	73.0 110.1	100.0 110.1	294.0 293.8	3	67.93	.001
Upper Level	f _o f _e	15.0 6.0	7.0 6.0	10.0 18.0	16.0 18.0	48.0 48.0	3	17.45	.001
Samples: Functions	f	ST	SF	NF	NT	Total Cases	d.f.	X ²	P
Min. Prog.	f _o f _e	52.0 23.2	55.0 92.8	28.0 23.2	10.0 5.8	145.0 145.0	3	55.18	.001
I Yr. Prog.	f _o f _e	64.0 47.0	91.5 188.0	102.0 47.0	36.5 11.8	294.0 293.8	3	171.74	.001
Upper Level	f _o f _e	8.5 7.7	19.5 30.7	14.0 7.7	6.0 1.9*	48.0 48.0	3	18.17	.001

*Grouping this intuition-thinking cell with the intuition-feeling cell yields a probability also of less than .001; therefore this low frequency cell is retained to allow for uniformity of interpretation.

this combination of dimensions are relatively weak academically, and the low observed frequency may be due to the fact that many sensation-feeling types have not succeeded in achieving university matriculation standing.

The modal female preference-type of this sample population, according to Table XVI, is the extraversion-sensation-feeling-judgment type (ESFJ), which is described as follows:¹

Warm-hearted, talkative, popular, conscientious, interested in everyone, a born cooperator and active committee member. Has no capacity for analysis or abstract thinking, and so has trouble with technical subjects, but works hard to master the facts in a lesson and win approval. Works best with plenty of encouragement. Always doing something nice for someone in a practical way.

Almost two-thirds of this sample population (64.8%) belonged to one of four preference-types: ESFJ, ISTJ, ESTJ, and ISFJ, and these have in common the sensation and the judgment dimensions.²

First Year Degree Program Females

Although the females of this sample population had the same median and modal age of eighteen as the females of the minimum program, the former revealed a different pattern of positive and negative cells when compared with the general female population. The introversion-judgment pattern again greatly exceeds the expected frequency, as in all the above sample populations. In view of the previous discussion of the perception dimension, however, the most marked difference between this sample and those discussed previously, is the relatively large proportion of perception preference-types. Extraversion-judgment dimensions formed a

¹Myers, op. cit. ²See Appendix for these type descriptions.

negative cell. Taken as a whole, the attitude dimensions of this sample population differed from those of the general population at a level of significance beyond .001.

This level of significant differences was also found with regard to the functions. The greatest contribution to this significant difference was in the relatively large number of intuitives. The sensation-feeling dimensions formed a negative cell, as in the previous sample population.

The modal preference-type at this level was ENFP, which is described on the high school level as follows:¹

Warmly enthusiastic, high-spirited, ingenious, imaginative, can do almost anything that interests her. Quick with a solution for any difficulty and very ready to help people with a problem on their hands. Often relies on her spur-of-the-moment ability to improvise instead of preparing her work in advance. Can usually talk her way out of any jam with charm and ease.

The greater heterogeneity of this sample population, as compared with the minimum program females, is evident from the data in Table XVI. Research by Myers² and McKinnon³ suggests that the first year degree program females are more able and more creative, due to the greater proportion of intuitives and perceptives in this sample population.

Upper Level Degree Program Females

With both the attitudes and the functions, the contributions to X^2 follow precisely the same pattern as with the first year degree program students, and these frequencies differ from those of the general population

¹Myers, op. cit. ²Myers, op. cit. ³Tyler, op. cit.

at a significance level beyond .001. The modal preference-type, however, was ESFJ, corresponding to the mode of the minimum program females. Examination of relative frequencies in Table XVI reveals that this sample population appears to be more like the first year degree program female distribution of preference-types than it is to the minimum program females. This aspect is examined more in detail in the following section.

Differences among Education Student Samples

In Table XX the sample populations of education students are compared by sex. None of the male sample comparisons reached the .05 level of significant differences. Nevertheless, the trend appears to be consistent with the expectation that students who commit themselves to a longer period of professional training will tend to differ from the group which commits itself to the minimum program, and that the groups who are at different levels of training in the same program will be more homogeneous. Thus the minimum program male students consistently produced a relatively larger chi-square when compared with either the first year or the upper level degree program students than when the first year program students were compared with the upper level males. This observation was supported by a one-tailed sign test in which seven of the eight comparisons of attitudes and functions were in the expected direction, yielding a probability of less than .04.

This trend is the same in the case of the female sample populations, except that these similarities and differences are more pronounced. Although the minimum program females and the first year degree program females each have a median and modal age of eighteen years, the differences

TABLE XX
DIFFERENCES AMONG GROUPS OF EDUCATION STUDENTS

Male Sample a	N	Male Sample b	N	Bases of Comparison	d.f.	χ^2	P
Min. Prog.	71	I Yr. Prog.	166	Attitudes	3	4.67	.20
				Functions	3	5.64	.15
Min. Prog.	71	Upper Level	62	Attitudes	3	6.08	.11
				Functions	3	3.44	.30
I Yr. Prog.	166	Upper Level	62	Attitudes	3	1.23	.75
				Functions	3	.70	.90
Female Sample a	N	Female Sample b	N	Bases of Comparison	d.f.	χ^2	P
Min. Prog.	145	I Yr. Prog.	294	Attitudes	3	18.58	.001
				Functions	3	19.22	.001
Min. Prog.	145	Upper Level	48	Attitudes	3	6.43	.10
				Functions	3	6.81	.08
I Yr. Prog.	294	Upper Level	48	Attitudes	3	.52	.90
				Functions	3	1.84	.60

between the two sample populations are striking. In the minimum program, students are relatively uncommitted to the teaching profession and take only one year of training initially. In the first year degree program, however, students make a commitment for two to four years of professional training.

In the attitudes, there are consistently more perceptives among the first year degree program females, while the judgment dimension is stronger among the minimum program females. Applying the sign test to these comparisons in Table XVI yielded a probability of .004. This test involved a comparison of the percentage frequencies of each of the sixteen preference-types for the two sample populations. This difference would make the first year program females approximate more nearly the larger proportion of perceptives found in samples of arts and sciences students. A second apparent difference is found in the sensation-intuition dimensions. A total of 47.3 per cent of the first year degree program females are intuitives, as compared with 26.1 per cent in the minimum program.

Comparisons between the minimum program females and the upper level degree program females followed the same pattern as above, but the differences did not reach statistical significance. The sign test, however, applied to this pattern similarity yielded a probability of less than .04. From Table XX it appears that the first year and upper level degree program females are homogeneous in both attitudes and functions, as expected.

Concluding Observations

On the basis of preference-type, it appears that anyone who qualifies academically may enter and does enter a program of professional training for the teaching profession. At the same time, however, there appear to be sharp and consistent differences between the various education sample populations and the general population. Table XVII summarizes the percentage distribution of each of the four personality dimensions under consideration.

With respect to extraversion-introversion, extraverts are in each sample in the majority for both males and females, ranging from 52.0 per cent to 58.9 per cent of the total, as compared with 75 per cent found in the general population. Many more introverts than expected thus appear to be attracted to the teaching profession. Presumably by definition, extraverts are attracted to teaching primarily in order to work with people, while introverts are attracted primarily in order to work with ideas.

Regarding sensation-intuition, sensation preference-types are consistently in the majority, ranging from 52.9 per cent to 73.8 per cent, as compared with an 80 per cent frequency found in the general population. All male samples and the minimum program females appear to be considerably stronger in the sensation dimension than is true of the degree program females, where intuition is relatively stronger. The number of intuitives attracted to the profession, however, is consistently higher than would be expected from the general population.

Sex differences appear with respect to the thinking-feeling dimension.

Males were more apt to possess the thinking dimension, ranging from 57.7 per cent to 59.6 per cent, which very nearly approximate the proportion of 60 per cent found in the general male population.

The feeling dimension is more characteristic for all female samples, ranging from 57.2 per cent to 69.9 per cent for the three sample populations, as compared to 80 per cent found in the general female population. Thus female thinking preference-types are attracted to the teaching profession beyond the expected frequency found in the general female population.

In all the sample populations, the judgment dimension was found more frequently than perception, and this phenomenon is further accentuated when sample populations of teachers and administrators are considered in this chapter. The range for the student sample populations in the judgment dimension was from 61.8 per cent to 81.6 per cent of cases.

In spite of the great variety of preference-types found among the education students, the ESTJ preference-type emerged as most characteristic of males, and the ESFJ preference-type as most characteristic of the female education student.

Despite the heterogeneity of the sample populations of education students, the hypothesis was supported by the evidence submitted above that students in education differ significantly in the distribution of personality types from the distribution of types found in the general population.

Hypothesis #2

The second hypothesis was stated as follows: Certain personality

types are characteristic of teachers in service, as opposed to the distribution of personality types found in the general population.

Table XXI shows the expected and observed frequencies for the teacher sample population by sex, as compared with the general population. In the attitudes, the male teachers of this sample population differed sharply from the distribution expected from the general population. This difference was significant beyond the .001 level. While extraversion-judgment was numerically the largest group, the introversion-judgment positive cell contributed most to the difference. Extraversion-perception dimensions were rare among these males.

In the functions, male teachers were not significantly distinguishable from the males of the general population. Slightly more than half the males possessed the sensation-thinking dimensions, but this is approximately the proportion that would be found in the general male population.

According to Table XV, almost half the male teachers (47.8%) are of two preference-types: ESTJ and ISTJ. In the general male population, these two preference-types make up 24 per cent of the total. Next in order are the ESFJ and the ENTJ patterns, which comprise 19.6 per cent of the male teachers of the sample population. Thus more than two-thirds of the male teachers (67.4%) comprised four preference-types, while the remaining third of the male teachers were distributed among the remaining ten preference-types. No male teachers were found to have the ESTP or the ENFP pattern. While 50 per cent of the males in the general population possess the perception dimension, this was true only of 18.9 per cent of the male teachers.

TABLE XXI
TEACHERS IN SERVICE SAMPLE COMPARED WITH
THE GENERAL POPULATION BY SEX

Bases of Comparison	Sex	f	IJ	IP	EP	EJ	Total Cases	d.f.	X ²	P
Attitudes	m	f _o f _e	16.0 5.7	6.0 5.7	3.0 17.3	21.0 17.3	46.0 46.0	3	31.24	.001
Attitudes	f	f _o f _e	44.0 15.4	11.5 15.4	11.0 46.1	56.5 46.1	123.0 123.0	3	83.17	.001
Bases of Comparison	Sex	f	ST	SF	NF	NT	Total Cases	d.f.	X ²	P
Functions	m	f _o f _e	23.25 22.00	9.25 14.70	5.25 3.70	8.25 5.50	46.0 45.9	3	4.11	.25
Functions	f	f _o f _e	28.5 19.7	54.5 78.7	26.0 19.7	14.0 4.9	123.0 123.0	3	30.28	.001

Among the female teachers, according to Table XXI, differences from the general population were more striking, and were significant beyond the .001 level.

In the attitudes, the largest contribution to the difference was the unexpectedly large number of introversion-judgment preference-types. The next largest contribution was found in the negative extraversion-perception cell. In these respects male and female teachers followed the same pattern. In addition, as with the males, extraversion-judgment was numerically greater than expected.

Regarding the functions, the greatest contribution to the difference was the fact that the number of intuitive-thinking preference-types was relatively common among the female teachers - about three times the expected number. Although sensation-feeling preference-types were the most common among the female teachers, this cell was negative. The possibility that this phenomenon is due to a relatively lower level of ability and achievement on a group basis was discussed in connection with the first hypothesis.

The female teachers appeared to be more heterogeneous with respect to preference-type than the males. The two most common patterns were ESFJ and ISFJ, respectively, but these constituted only 35.8 per cent of the total number of female teachers, according to Table XVI. Next in order of occurrence were ESTJ (11.0%) and ISTJ (10.6%), making a total of 57.4 per cent of female teachers of these four types. In the general female population, these four patterns constitute 40 per cent of cases. The fact that ESFJ constituted a negative cell, however, should be noted when

comparing the expected frequency of 40 per cent with the figure of 57.4 per cent. Only 18.3 per cent of female teachers possessed the perception dimension as compared with 50 per cent in the general female population.

While the number of cases in each cell was too small to permit statistical analysis on an individual preference-type basis, the evidence cited above supports the hypothesis that both male and female teachers tend to be concentrated within a limited number of preference-types, significantly different from the distribution found in the general population.

Hypothesis #3

The third hypothesis states that certain personality types are characteristic of administrators, as opposed to the distribution of personality types found in the general population.

Table XXII summarizes the tests of statistical significance applied to educational administrator scores compared with the general male population. All comparisons were significant beyond the .001 level of probable differences.

Both principals and superintendents had the same pattern of positive and negative cells. With the sign test, the probability of this occurrence for the eight points of comparison was .004. In the attitudes there appeared to be a strong attraction for extraversion-judgment and introversion-judgment types, but it is interesting to note that the perception dimension occurred more than twice as frequently among superintendents as among principals. If this pattern is confirmed by larger samples, this

TABLE XXII
ADMINISTRATOR SAMPLE POPULATIONS COMPARED
WITH THE GENERAL POPULATION

Attitudes: Samples	f	IJ	IP	EP	EJ	Total Cases	d.f.	χ^2	P
Princ. vs. Gen. Pop.	f_o f_e	21.5 7.2	2.5 7.2	2.0 21.8	32.0 21.8	58.0 58.0	3	54.22	.001
Supts. vs. Gen. Pop.	f_o f_e	24.0 8.2	3.0 8.2	9.5 24.8	29.5 24.8	66.0 66.0	3	44.07	.001
Functions: Samples	f	ST	SF	NF	NT	Total Cases	d.f.	χ^2	P
Princ. vs. Gen. Pop.	f_o f_e	19.75 27.84	11.75 18.56	12.25 4.64	14.25 6.96	58.0 58.0	3	24.98	.001
Supts. vs. Gen. Pop.	f_o f_e	21.5 31.7	19.0 21.1	13.0 5.3	12.5 7.9	66.0 66.0	3	17.36	.001

phenomenon may bear a relationship to the fact that a principal's role is more narrowly defined, while superintendents fill many kinds of roles. Five of the preference-types did not occur among the principals, while only one preference-type was not represented among the superintendents.

All the intuition dimensions formed positive cells for both principals and superintendents, which suggests that the intuition dimension is consciously or unconsciously recognized as an important dimension of the educational administrator. Numerically, however, the ESTJ pattern was found most frequently among both sample populations - 23.7 per cent of the principals, and 19.7 per cent of the superintendents.

About four out of five principals of the sample population (78.9%) fell into one of six personality types: ESTJ, ENTJ, ESFJ, ISTJ, INFJ, and INTJ, in that order, as compared with an expected frequency of 43 per cent for these six patterns in the general male population. A total of 71.3 per cent of the superintendents were one of the following six patterns: ESTJ, ESFJ, ISTJ, ISFJ, INTJ, and ENFP, in that order, as compared with an expected percentage frequency for these patterns of 44.5 per cent among the general male population.

A total of 92.3 per cent of the principals and 81.1 per cent of the superintendents possessed the judgment dimension as compared with a 50 per cent frequency in the general male population. The characteristics of planning, organizing, following through, and decision-making associated with the judgment dimension made it highly plausible that most educational administrators of the sample populations possessed this dimension.

Despite the heterogeneity of the sample populations of educational

administrators tested, the evidence presented supported the hypothesis that certain personality types were characteristic of administrators, as opposed to the distribution of personality types found in the general population.

Hypothesis #4

The fourth hypothesis states that teachers in service differ significantly from students in education in the distribution of personality preference-types.

Table XXIII shows the results of the tests of significance for the teachers compared with the education students by sex. Since the size of the samples was relatively small, combinations of the attitudes and functions in pairs were taken, using the X^2 test for two independent samples.

None of the comparisons of the male education students with male teachers proved to reach a level of significant differences, which indicates that approximately the same proportion of preference-types existed at each of the four levels. This finding was further confirmed by a X^2 test of the four independent samples, which yielded probabilities of .40 for the attitude combinations and .50 for the function combinations. There was thus no indication, on the basis of this evidence, that certain preference-types among the males were more apt than others to drop out of the profession in the course of their professional training.

The female student sample populations compared with female teachers yielded quite different results. The first year program females differed significantly both in attitudes and functions from the female teachers, as

TABLE XXIII
TEACHERS COMPARED WITH EDUCATION STUDENTS BY SEX

Sample a	N	Sample b	N	Sex	Bases of Comparison	d.f.	X ²	P
Teachers	46	Min. Prog.	71	m	Attitudes	3	2.29	.50
					Functions	3	2.37	.50
Teachers	46	I Yr. Prog.	166	m	Attitudes	3	2.97	.40
					Functions	3	3.05	.40
Teachers	46	Upper Level	62	m	Attitudes	3	4.30	.25
					Functions	3	1.45	.70
Teachers	123	Min. Prog.	145	f	Attitudes	3	2.39	.50
					Functions	3	5.80	.15
Teachers	123	I Yr. Prog.	294	f	Attitudes	3	17.19	.001
					Functions	3	9.64	.03
Teachers	123	Upper Level	48	f	Attitudes	3	6.35	.10
					Functions	3	1.61	.70
Samples Compared					Bases of Comparison	d.f.	X ²	P
All four male sample populations					Attitudes	9	9.22	.40
					Functions	9	8.91	.50
All four female sample populations					Attitudes	9	30.58	.001
					Functions	9	27.53	.001

shown in Table XXIII. The students were numerically stronger in both perception and in intuition. While the same pattern of positive cells was found when the sample population of 48 upper level degree program females was compared with teachers in service, these latter comparisons did not reach a level of significant differences. With the sign test, however, the probability of the occurrence of these identical patterns was .004.

Females in the minimum program were not significantly different from the female teachers either in attitudes or functions. A total of 70 of the 123 female teachers had one year of teacher training, which may have been a contributing factor in the similarity between the two sample populations.

A χ^2 test of the four independent female sample populations yielded results of significant differences at the .001 level for both attitudes and functions. What appeared to be even more interesting was that the pattern of positive and negative cells tended strongly to group the degree program samples together as similar, and the minimum program students and the teachers together in the same way. This observation held for thirteen of the sixteen points of comparison with the sign test, yielding a probability of occurrence of .011. Perception and intuition were numerically stronger in the degree program samples, while judgment and sensation tended to dominate in the other two sample populations.

The evidence above seems to indicate that the degree program tends to attract a significantly different distribution of preference-types than does the one year program which characterized the minimum program females

and 61.0 per cent of the female teachers tested.

The hypothesis that teachers in service differ significantly from students in education thus was only partially supported. Male students in education could not be distinguished as a group at any of three different levels from the male teachers in service. Female students registered for a minimum one-year program could not be distinguished from female teachers in service, the latter group consisting of a majority who themselves had a one-year program of training. The first year degree program females, however, differed significantly from the sample population of teachers. The sample population of upper level degree program females did not differ significantly from the teachers, but their pattern of personality dimensions was more similar to the first year degree program females than to either of the other samples, as supported by the sign test.

Hypothesis #5

The fifth hypothesis is stated as follows: Administrators differ significantly from teachers in service in the distribution of personality types, that is, not all teacher types are characteristic of administrators.

In terms of preference-types represented among the 46 male teachers, 58 principals, and the 66 superintendents, all the eight judgment types were found in each sample population. Two of the perception types, ESTP and ENFP, did not appear for teachers; five perception types, ESTP, ISTP, ENTP, ISFP, and INTP, were not represented among the principals; and one perception type, ISTP, was not found among the superintendents. If this kind of distribution were substantiated from additional sampling, it

would suggest that there are many teacher roles and many superintendent roles which attract a relatively greater variety of preference-types, but that the principal's role seems to be more uniform than either of the other two.

The tests of statistical significance for the hypothesis are summarized in Table XXIV. The low frequencies for the perception dimension among the three sample populations prevented analysis of the cells where the greatest differences seemed to occur. It was necessary to combine the introversion-perception cells with the extraversion-perception cells in order to achieve the necessary minimum size for each cell. This X^2 test for the three independent samples - teachers, principals, and superintendents - yielded probability levels respectively of .40 and .50 for the attitudes and the functions. Thus for these sample populations there was no way of distinguishing male teachers, principals, and superintendents on the basis of preference-type.

The tests of significance for each combination of two of the three sample populations yielded probability figures ranging from .20 to .70. Male teachers compared with principals and superintendents separately yielded probabilities ranging from .20 to .30. Thus no definite support for the hypothesis was found on the basis of the sample populations tested.

Hypothesis #6

The sixth hypothesis is stated as follows: Administrators tend to cluster in the four personality patterns which have in common the extraversion and judgment dimensions.

TABLE XXIV
COMPARISONS BETWEEN MALE TEACHERS
AND EDUCATIONAL ADMINISTRATORS

Samples Compared	Bases of Comparison	d.f.	χ^2	P
Teachers (46) and principals (58)	Attitudes	2	3.18	.20
	Functions	3	3.64	.30
Teachers (46) and superintendents (66)	Attitudes	3	3.91	.30
	Functions	3	4.16	.25
Principals (58) and superintendents (66)	Attitudes	2	3.56	.20
	Functions	3	1.39	.70
Teachers (46), principals (58), and superintendents (66)	Attitudes	4	4.09	.40
	Functions	6	5.94	.50

This hypothesis was confirmed by inspection of Tables XV and XVII. A total of 55.2 per cent of the principals and 44.7 per cent of the superintendents, according to the test data, possessed these two personality dimensions in common. This combination is found among 37.5 per cent of the general male population. None of the other possible combinations of attitudes or functions appeared as often in the personality patterns of these administrators.

When each of the two dimensions was taken separately, Table XVII shows that 58.6 per cent of the principals and 59.1 per cent of the superintendents were extravert, as compared with 75 per cent of the general male population. A total of 92.3 per cent of the principals and 81.1 per cent of the superintendents possessed the judgment dimension, while this dimension occurs among 50 per cent of the general male population.

Extraversion, an orientation toward the external world of people and objects, thus was consciously or unconsciously given some priority in the selection of the administrators of these sample populations. Judgment, which is related to organizing, planning, and decision-making, was apparently given the highest priority in selection. There appeared to be relatively few roles in administration which could be filled by candidates who possessed the perception dimension, according to the sample populations of administrators tested.

Hypothesis #7

The seventh hypothesis takes into consideration the previous six

hypotheses, and reads as follows: The five levels under consideration in this study: general population; students in education; teachers in service; principals; and superintendents, in that order, form a pyramid of personality types, each level of which is reduced in the number of types from that of the preceding level.

The evidence is presented separately for the male and the female sample populations, using the frequencies listed in Tables XV and XVI. In the previous discussion in this chapter, the significant differences between the distribution of preference-types among the general population and the various levels of sample populations in education were demonstrated. These significant differences support the hypothesis above in part that selection on the basis of preference-type seemed to occur when the choice was made to enter the teaching profession.

Female Samples

Table XXV presents the contributions to X^2 of each possible combination of paired attitudes and paired functions for the general female population and for the four female samples. In addition, the positive cells are indicated as a tentative basis for analysis with respect to the above hypothesis. The differences which occurred both in the attitudes and in the functions were significant at the .001 level.

Two sequences occurred which may be examined. The first sequence was from the minimum program level directly to the teaching level. In the attitudes, both levels had the same pattern of positive cells, though they differed in degree. The data indicated that the extraversion-

TABLE XXV

COMPARISON OF GENERAL POPULATION AND ALL LEVELS
OF FEMALE SAMPLE POPULATIONS

Samples: Attitudes	N	Contributions to χ^2				d.f.	χ^2	P
		IJ	IP	EP	EJ			
General Pop.	100*	10.0	<u>.2</u>	<u>16.4</u> **	.0			
Min. Program	145	<u>5.2</u>	3.6	5.1	<u>.5</u>			
I Yr. Program	294	.4	<u>1.4</u>	<u>2.0</u>	1.3			
Upper Level	48	.0	<u>.5</u>	.0	.3			
Teachers	123	<u>1.5</u>	.4	8.6	<u>2.0</u>	12	59.4	.001
Samples: Functions	N	Contributions to χ^2				d.f.	χ^2	P
		ST	SF	NF	NT			
General Pop.	100	2.6	<u>14.2</u>	4.0	3.5			
Min. Program	145	<u>8.9</u>	.2	2.6	1.3			
I Yr. Program	294	.5	5.9	<u>8.1</u>	<u>1.8</u>			
Upper Level	48	.7	.0	<u>.2</u>	<u>.3</u>			
Teachers	123	.0	<u>.5</u>	1.2	<u>.3</u>	12	56.8	.001

*An arbitrary sample of 100 has been taken to represent the general female population.

**Positive cells are underscored.

judgment pattern may be more likely to remain in the profession, while extraversion-perception seemed to show some attrition. A followup study of the current minimum program students to test this observation may have potential value. The sharpest difference between the two sample populations was with respect to the sensation-thinking functions. To the extent that these sample populations are representative of larger populations, a large dropout factor may be indicated by this difference. This possibility could be examined by means of a followup study, as evidence for the pyramid effect.

The second sequence among the female sample populations is from the first year degree program to the upper level degree program to the teaching level. Here the evidence indicates the pyramid effect hypothesized to a marked degree. Seven of the eight comparisons show a gradation from greater to lesser, or lesser to greater retention of the various preference-types. The sign test applied to this observation is significant at the .035 level.

The combinations of preference-types which tend to be retained in the profession, according to this tentative evidence, are listed according to the degree of retention indicated: extraversion-judgment, introversion-judgment, and sensation-feeling. Dropouts from the profession, according to this evidence, are more likely to occur from extraversion-perception and intuition-feeling types. This tentative finding invites further investigation, and it involves the assumption that the 123 female teachers are representative of a larger population of female teachers.

In Table XXVI the frequencies of the sixteen preference-types found

TABLE XXVI
FREQUENCY RANK OF PREFERENCE-TYPES FOR
EACH FEMALE SAMPLE POPULATION

Type	Gen. Pop.	Min. Prog.	I Yr. Prog.	Upper Level	Teachers
ESFJ	1.5	1	3	1	1
ESFP	1.5	8	9	7	8
ISFJ	3.5	4	2	2	2
ISFP	3.5	11.5	10	7	9
ESTJ	6.5	3	4	3.5	3
ESTP	6.5	10	14	none	13
ENFJ	6.5	9	5	11	5
ENFP	6.5	6	1	5	10
ISTJ	10.5	2	6	7	4
ISTP	10.5	13	16	none	15
INFJ	10.5	5	8	3.5	7
INFP	10.5	11.5	7	9	12
ENTJ	13.5	7	12	11	6
ENTP	13.5	none	13	11	none
INTJ	15.5	14.5	11	13.5	14
INTP	15.5	14.5	15	13.5	11
N =	----	145	294	48	123

for each sample population of females have been placed in simple rank order. Ten of the sixteen preference-types exhibit stability of rank throughout. The ESFJ, ISFJ, and ESTJ patterns are uniformly high; the ESFP and ISFP types are of medium rank throughout; and the ESTP, ISTP, ENTP, INTJ, and INTP patterns are uniformly of low rank. The remaining six preference-types are more variable. Three of these: ENFJ, ISTJ, and ENTJ, rank relatively low in the student populations, but higher in the teacher population, which may suggest high retention of these types. The remaining patterns: ENFP, INFJ, and INFP, rank relatively higher among the student populations than in the teacher sample population, suggesting a dropout factor.

The discussion above indicates some support for the pyramid hypothesis through the three general aspects observed: types which appear to remain stable throughout all levels; types which seem to be strongly retained; and types which appear to show that dropouts occurred or may be anticipated. These indications and trends must be classed as highly tentative and true only for the sample populations under study. The possible significance of these findings awaits further study.

Male Samples

Table XXVII presents the contributions to X^2 of each possible combination of paired attitudes and paired functions for the male sample populations. The positive cells are indicated as an additional basis for tentative analysis with respect to the hypothesis involved. The X^2 test for the seven independent sample populations revealed differences significant at the .001 level for the paired attitudes. There were no significant

TABLE XXVII

COMPARISON OF GENERAL POPULATION AND ALL LEVELS
OF MALE SAMPLE POPULATIONS

Samples: Attitudes	N	Contributions to X^2				d.f.	X^2	P
		IJ	IP	EP	EJ			
General Pop.	100*	9.8	<u>.1**</u>	<u>24.0</u>	.4			
Min. Program	71	<u>2.7</u>	.9	.8	.1			
I Yr. Program	166	<u>.1</u>	<u>1.8</u>	.2	.4			
Upper Level	62	.8	<u>2.1</u>	.0	.0			
Teachers	46	<u>.4</u>	<u>.1</u>	3.0	<u>.2</u>			
Principals	58	<u>1.1</u>	2.6	6.4	<u>2.5</u>			
Superintendents	66	<u>1.0</u>	2.8	.3	<u>.1</u>	18	64.7	.001
Samples: Functions	N	Contributions to X^2				d.f.	X^2	P
		ST	SF	NF	NT			
General Pop.	100	<u>.5</u>	<u>1.3</u>	3.4	.7			
Min. Prog.	71	.8	<u>.2</u>	.2	<u>1.6</u>			
I Yr. Prog.	166	<u>.8</u>	.0	<u>.2</u>	2.8			
Upper Level	62	<u>.2</u>	.3	<u>.2</u>	.4			
Teachers	46	<u>.5</u>	.6	.4	<u>.2</u>			
Principals	58	1.2	.7	<u>1.4</u>	<u>3.4</u>			
Superintendents	66	1.8	<u>.2</u>	<u>.8</u>	<u>.6</u>	18	25.4	.11

*An arbitrary sample of 100 has been taken to represent the general male population.

**Positive cells are underscored.

differences among the functions.

In the attitudes, the greatest differences appeared in the perception dimensions, IP and EP, which occurred at a relatively higher frequency among students in the degree program, but which were generally less frequent among both teachers and administrators. This may suggest that attrition rates for students possessing the perception dimension may be significantly greater than for judgment preference-types, particularly for extraversion-perception.

Retention within the profession appeared to be higher for extraversion-judgment, introversion-judgment, and for intuition-thinking preference-types. A smaller proportion of introversion-perception types appeared to leave teaching positions to enter administrative posts. The extraversion-judgment, introversion-judgment, intuition-feeling, and intuition-thinking types appeared to be stronger among administrators than among male teachers. Extraversion-perception, which was relatively weaker among both teachers and principals, seemed to emerge at greater numerical strength among superintendents. Further testing of samples is necessary to determine whether these observations are valid, or whether these differences merely reflect sample fluctuations.

With reference to the hypothesis under analysis, the pattern was by no means a clear one. Tentative evidence, however, was presented above which pointed out a number of plausible possibilities: some types appeared to indicate more potential dropouts; some types remained uniformly strong numerically throughout all the levels; some types tended to reach the teaching level and remain there; some types were weaker numerically at

at the teaching level, but were stronger at the administrative level; some types showed the greatest numerical strength at the level of the principalship and a tendency to remain at the level; and finally, several types which were relatively weak at both the teacher and principal level seemed to emerge with greater numerical strength at the superintendent level. Further research with larger samples is required in order to evaluate these tentative observations.

Table XXVIII lists the frequency of preference-types for all male sample populations in simple rank order. A number of the preference-types exhibited remarkable stability under this comparison. The following types were uniformly high in frequency: ESTJ, ESFJ, ISTJ, and ISFJ. Patterns which were uniformly low in rank were the ESFP and INTP types, and the INFJ type was of medium rank throughout. Potential dropouts may be indicated among the ESTP types which occurred with high frequency among the degree program students, but which scarcely appeared to any degree among the male teachers and administrators tested. The ISTP type remained at a medium degree of frequency up to and including the teacher level, but did not appear among the administrators tested. The strong holding power of the ENTJ pattern is indicated by the high relative rank accorded this type among teachers and administrators, in contrast to the low frequency of this type at the student level. The ENTP, INFP, and ISFP patterns were more variable in frequency, but these seemed to fare better on the teaching level than as administrators. The remaining three types: ENFJ, ENFP, and INTJ, were highly variable in frequency, but all seemed to show greater numerical strength as administrators than as teachers.

TABLE XXVIII
 FREQUENCY RANK OF EACH PREFERENCE-TYPE FOR
 EACH MALE SAMPLE POPULATION

Type	General	Min.Pr.	I Yr.Pr.	Up.Lev.	Tchrs.	Princ.	Supt.
ESTJ	1.5	1	1	1	1.5	1	1
ESTP	1.5	none	4	4	none	none	15
ESFJ	3.5	2	3	3	3	3	2
ESFP	3.5	13	13	15	13	10.5	10.5
ISTJ	5.5	3.5	2	2	1.5	4	3
ISTP	5.5	10	10.5	9	10	none	none
ENTJ	7.5	8.5	16	13	4	2	7
ENTP	7.5	6	15	6	7	none	10.5
ISFJ	9.5	3.5	7.5	5	7	7	4
ISFP	9.5	13	5	9	10	none	13
ENFJ	11.5	13	9	9	13	8	8
ENFP	11.5	7	7.5	13	none	10.5	5.5
INTJ	13.5	5	14	none	13	5.5	5.5
INTP	13.5	none	10.5	13	10	none	13
INFJ	15.5	8.5	6	9	7	5.5	9
INFP	15.5	11	12	9	5	9	13
N =	----	71	166	62	46	58	66

Concluding Observations

It is obvious that the seventh hypothesis attempted to pose a simple solution to a highly complex and variable situation. As stated, the hypothesis was supported only in part, and this support lay chiefly in the sharp differences between the general population and those in the field of education. In addition, the female samples exhibited some significant pyramidal characteristics. The remaining observations are highly tentative and are subject to further study.

CHAPTER VI

ANALYSIS OF DATA AND RESULTS: VARIABLES OF SIGNIFICANCE TO ADMINISTRATION

In the previous chapter the seven hypotheses related to selection factors were analyzed. The remaining five hypotheses of the study - those related to factors of significance to educational administration - are examined in detail in the following section.

Hypothesis #8

The statement of the hypothesis is that teachers of different grade levels and of subject matter fields, and students who choose different vocational alternatives, differ significantly from other teachers and students respectively in the distribution of personality preference-types.

In Table XXIX five different sets of vocational alternatives in which male degree program students stated a preference or reported a prior decision were compared for significant differences. None of these comparisons, however, proved to reach the accepted level of significant differences.

For the first test of significance, the students were asked to state a future preference either for administration or for teaching as their major professional activity. While the differences observed may be attributed to chance fluctuations in the sample population, the largest positive cells were respectively: extraversion-judgment and

TABLE XXIX

COMPARISON OF MALE DEGREE STUDENT VOCATIONAL CHOICE DIFFERENCES

Preference a	N	Preference b	N	Bases of Comparison	d.f.	χ^2	P
Administration	49	Teaching	172	Attitudes	3	2.31	.50
				Functions	3	3.65	.30
Grade	31	Subject	190	Attitudes	3	2.00	.60
				Functions	3	4.27	.27
Elem. & Jr. High	51	Sr. High	153	Attitudes	3	4.39	.25
				Functions	3	.77	.85
Vocat. Change	46	No Change	175	Attitudes	3	1.54	.70
				Functions	3	1.52	.70
Math. & Sc. Maj.	112	Other Majors	107	Attitudes	3	3.29	.40
				Functions	3	3.34	.40

sensation-thinking. This trend is consistent with the modal preference-type of ESTJ found among the principals and superintendents of this study. Approximately one student out of five (22.2%) of the sample population - the combined first year and upper level degree program males - stated a preference for administration in his future professional work.

The second preference examined was the preference to teach all or most subjects in a grade or to concentrate on one major subject matter field for teaching. The preference of the males was strongly in favor of specialization, and comprised 86.0 per cent of the 221 students reporting. The largest positive cell in favor of grade level teaching was intuition-feeling, but no significant difference was found.

The third preference analyzed was for the grade level at which the male student wished to teach. A total of 75.0 per cent of the 204 students reporting stated a preference for teaching at the senior high school level. No significant difference was found when students who preferred the senior high level of teaching were compared with those who stated a preference for elementary or junior high school teaching.

Students were asked whether or not they had changed to education from another vocation, and 46 of the 221 students reporting answered in the affirmative. Those who had reported a change in vocation were then compared with the students who reported no vocational change. No significant difference in preference-type dimensions was found. This indicates that the male students attracted to education from other vocations do not differ as a group in personality dimensions from those students who entered the education program directly.

In the last study made of vocational choice differences, it was found that preference-type apparently bears no relationship to the choice of the male student for his academic major. The wide variety of majors selected, however, did not permit a thorough treatment by statistical means. Mathematics and science majors comprised slightly more than half the majors selected by the 219 students who reported this information. No significant difference was found when students who had selected mathematics and science majors were compared with the students who had selected other majors, and other variables are assumed to be involved in this kind of choice.

Table XXX presents the evidence for females who had made different decisions with respect to various aspects of their vocation or who had stated different preferences regarding their vocation. Significant differences were found.

Degree program females were asked to state a preference for elementary, junior high school, or senior high school level of teaching. Replies were distributed sufficiently to permit comparisons with preference-type dimensions. The attitude dimensions did not reach the accepted level of significant differences, but differences in functions were significant beyond the .01 level. It is interesting to note that the pattern of positive cells for both attitudes and functions were in perfect contrast for elementary and senior high school preferences, respectively, while the junior high school preference appears to be a compromise between the two. For the elementary level preference the positive cells were: IJ, IP, and SF; the positive cells for the junior high school level preference

TABLE XXX
COMPARISON OF FEMALE VOCATIONAL CHOICE DIFFERENCES

Preference vs.	N	Preference	N	Bases of Comparison	d.f.	X ²	P
Elementary vs.	131	Junior H.S. vs. Senior H.S.	69 123	Attitudes Functions	6 6	9.46 19.15	.15 .01
Grade	136	Subject	202	Attitudes Functions	3 3	2.92 11.39	.40 .01
Eng.& For.Lang.	56	No Major Indic.	100	Attitudes Functions	3 3	3.42 8.38	.35 .04
Upper Lev. Educ.	49	Arts Majors	48	Attitudes Functions	3 3	7.90 13.07	.05 .01
Prim. Teachers	74	Elem.& Jr. H.S.	48	Attitudes Functions	3 3	.64 1.24	.90 .75

were: IJ, IP, EJ, ST, and NT; and the positive cells for the senior high school level preference were: EP, EJ, ST, NF, and NT. The sign test applied to the elementary versus the senior high school level preference yielded a probability of .004.

Thus introversion-judgment and introversion-perception were more characteristic of the elementary level preference, while extraversion-judgment and extraversion-perception were proportionally greater among those who preferred the senior high school level of teaching. The functions of sensation-feeling were very strong numerically for students preferring the elementary level, while sensation-thinking and all the intuitive preference-types were stronger for those preferring the senior high school level.

The second vocational preference tested was related to the above, but was not identical to it. Students were asked whether they preferred to teach all or most subjects in a grade, or if they preferred to teach one or several subjects only. While those who preferred teaching a grade would normally do so at the elementary level, those teaching a single subject matter field could do so at any level. Again, opposite patterns of positive cells emerged, consistent with the findings of the study reported above. Those who had expressed a preference for teaching a grade matched those who had expressed a preference for elementary level teaching, and those preferring to teach a subject matter field matched those who expressed a preference for teaching at the senior high school level. The sign test applied to this relationship yielded a probability of .004.

Those females preferring grade teaching were relatively stronger in introversion-judgment, introversion-perception, and sensation-feeling. Those preferring to concentrate on one or several subjects were relatively stronger in extraversion-judgment, extraversion-perception, sensation-thinking, and all intuitives. The differences in functions were significant at the .01 level, using the X^2 test for two independent samples. This test did not yield a significant difference in the attitudes.

A third vocational choice was reflected in the choice of academic major. Students were asked to state their academic major, and where no major was indicated, it was assumed that these students had no immediate plans to complete their degree program but would enter elementary or junior high school level teaching as soon as they were eligible.

Following a suggested classification of teachers by Roe,¹ English and foreign language majors were contrasted with those who planned to teach on an elementary or junior high school grade basis with no major specified. Differences in the functions were significant beyond the .04 level. Majors in English and the foreign languages were relatively stronger in intuition, while sensation-feeling was dominant among the other group. There appeared to be a trend toward perceptives majoring in English and foreign languages, while judging types seemed to be stronger among those who expressed no academic major. This trend, however, was not statistically significant. Due to the great variety of majors indicated by other females in the degree program, it was not possible to apply tests of

¹Anne Roe, The Psychology of Occupations. New York: John Wiley & Sons, Inc., 1956, p. 230.

statistical significance to these samples.

The fourth test of significant differences compared the 49 females of the upper level degree program in education with 48 females majoring in the arts and sciences. Significant differences were found with respect both to the attitudes and to the functions. The education sample population was stronger in the judgment and in the sensation dimensions, while the arts students were more characteristically perceptive and intuitive.

The final test for significance was a comparison of 74 primary grade teachers and the other 48 female teachers in the elementary and junior high school system involved in the study. No significant differences were found, which may be due to the fact that most of these female teachers (81.3%) had one or two years of university training, while the majority of the students in the studies above were committed to a degree program. It has been demonstrated previously that the females of the minimum program in education are more like the female teachers tested in the distribution of personality preference-types. Thus it is not surprising that two samples drawn from the female teacher sample did not yield significant differences.

Other aspects related to vocational choices and preferences by teachers could not be tested due to the fact that the variety of responses made some cells too small for statistical treatment.

Hypothesis #9

Teacher satisfaction, as measured by the Teacher Satisfaction Questionnaire, is related significantly to personality type. This

hypothesis was tested for male teachers and for female teachers separately, using the analysis of variance technique. Preference-types with a frequency of five or more subjects formed the basis of the analysis. Not all subjects responded to all the questions of the questionnaire, and where this occurred, the analysis was conducted only for those who had responded. In one case for females, this procedure reduced the size of one frequency to four instead of the original five.

Only two male preference-types had a frequency of five subjects or more, which limited this portion of the analysis to possible differences occurring between the ESTJ and the ISTJ patterns. Nine female preference-types, however, showed a frequency of five or more subjects. Significant results were found for both the male teachers and for the female teachers. In all cases the F test was applied in order to meet the assumption of equal variances, and in all cases equal variance may be assumed. In the female samples, the appropriate t tests were applied when the analysis of variance produced significant results.

In Table XXXI the results are shown for the male teachers of the two preference-types: ESTJ and ISTJ. Of the six variables assumed to be related to teacher satisfaction within the profession, four differences were found to be significant, and these differences appeared to be consistent with one another, as well as with the descriptions of these respective types. The possibility exists, of course, that these types differ in response set, quite apart from the specific content of the given question.

In Global Satisfaction, the extravert sample (ESTJ) expressed

TABLE XXXI
COMPARISON OF MALE PREFERENCE-TYPES AND DEGREE
OF SATISFACTION INDICATED

Basis of Comparison	Preference-Types	N	M	Pooled S.D.	F	t	P
Global Satisfaction	ESTJ vs. ISTJ	9 10	2.44 3.90	1.06	8.96	2.99	.01
Social Satisfaction	ESTJ vs. ISTJ	9 10	3.44 3.70	1.24	.20	----	NS
Policy Satisfaction	ESTJ vs. ISTJ	9 10	2.78 3.70	.89	5.03	2.24	.05
Occupational Satisfaction	ESTJ vs. ISTJ	9 10	4.11 2.60	1.17	7.90	2.81	.02
Alternative Employment Perception	ESTJ vs. ISTJ	9 10	2.67 3.00	.84	.75	----	NS
Conformity Pressure	ESTJ vs. ISTJ	9 10	2.22 2.90	.37	15.50	3.94	.01

greater all-around satisfaction with their present teaching position than did the introvert sample (ISTJ). The setting and the pace of the current teaching position appeared to be such that the ESTJ preference-type was ready to say that his current position was among the better teaching situations, if not one of the best that he knew of. In contrast, the ISTJ preference-type, who was presumably in the identical physical setting, would concede only that his current teaching situation was only slightly above the average.

No significant difference was found with respect to Social Satisfaction. Consistent with the analysis above, however, the mean social satisfaction expressed by the extravert sample was greater than that expressed by the introverts.

A significant difference was found with respect to expressed satisfaction with the educational policies followed in the schools involved as compared with policies that the subjects felt to be most desirable educationally. The characteristic response of the extravert type was that the educational policies followed were very good. The introvert typically checked the response that some of the educational policies followed were undesirable although many were satisfactory.

The extravert preference-type also expressed significantly greater satisfaction with his present occupation of teaching than did the introvert. The extravert expressed conviction that he would not be inclined to give serious consideration to a non-teaching position at an increase in salary of \$500 per year, assuming that he could still utilize his present academic training and abilities. The introverts of the sample

indicated generally a response which stated that they would give serious consideration to such an opportunity.

No significant difference was found with respect to perception of alternative employment opportunities. Each sample typically indicated that they felt that there were enough opportunities for non-teaching positions that could be found in a reasonable length of time.

Subjects were asked to respond to an item related to conformity pressure felt. They were asked in what manner the administration in their school reacted when teachers expressed criticisms of the school's educational policies in faculty meetings. Expressed differences were significant beyond the .01 level. Both means were relatively high, which in general indicated that no undue pressure was felt by either sample. However, the extraverts characteristically felt that the administration encouraged criticisms and received them in a fair manner, while the introverts typically indicated that their criticisms were accepted by the administration without prejudice to the teacher. Thus there appears to be a relatively greater rapport between the extravert teacher and the administrator, while the introvert teacher does not tend to indicate such rapport or warmth.

When it is considered that the 19 male teachers of the two preference-types under consideration came from 12 different settings in 12 different schools and served under 12 different principals, these consistent results related to preference-type appear to take on particular significance, which speaks well for both instruments involved in these comparisons.

Table XXXII expresses the significant results found for female teachers with the same teacher satisfaction scale. The data are not given for the four categories in which no significant differences were found. There is no apparent explanation for the fact that significant differences were found among the females in precisely the two scales that were not significantly different among the males.

The subjects were requested to indicate their degree of satisfaction with the social relationships among the teachers at their respective schools. Six pairs of preference-types produced significant differences. Both the modal female teacher preference-type (ESFJ) and the ESTJ preference-type, which is modal for males, were found to be significantly more satisfied with the social relationships than were three other preference-types: ENTJ, ISTJ, and ISFJ. The findings that the introvert samples were less satisfied socially were not surprising in view of the results of the differences found among male teachers, and the descriptions of the preference-types themselves. According to the description of the ENTJ preference-type, these subjects lean toward intellectual pursuits and the active practice of leadership, and hence may have less interest in social activities in the school setting as such.

As an indication of alternative employment perception, subjects were requested to state how plentiful they felt employment opportunities existed in non-teaching positions for persons of their sex and with their particular subject-matter training. They were to consider only non-teaching jobs with salaries about the same as, or better than, their present teaching position. Three pairs of preference-types produced

TABLE XXXII

COMPARISON OF FEMALE PREFERENCE-TYPES AND DEGREE
OF SATISFACTION INDICATED

<u>Social Satisfaction</u>									
Preference- Type	N	Mean	Pooled S.D.	F	P	<u>t Tests:</u>	d.f.	t	P
ESTJ	13	2.38	1.27	2.12	.05	ESTJ vs. ENTJ	94	2.80	.01
ESFJ	22	2.86				ISTJ	94	2.84	.01
ISFP	5	3.20				ISFJ	94	3.16	.01
INFJ	7	3.29							
ENFJ	10	3.50				ESFJ vs. ENTJ	94	2.06	.05
ESFP	5	3.60				ISTJ	94	2.16	.05
ISFJ	20	3.80				ISFJ	94	2.41	.05
ISTJ	12	3.83							
ENTJ	9	3.89							

<u>Alternative Employment Perception</u>									
Preference- Type	N	Mean	Pooled S.D.	F	P	<u>t Tests:</u>	d.f.	t	P
ESFJ	20	3.05	.83	2.28	.05	ESFJ vs. ISFJ	85	3.74	.01
ISFP	5	3.20				ISTJ	85	2.90	.01
ESFP	4	3.25							
ENTJ	7	3.43				ISFP vs. ISFJ	85	2.40	.02
ENFJ	9	3.56							
ESTJ	12	3.67							
INFJ	7	3.71							
ISTJ	12	3.92							
ISFJ	18	4.06							

significant differences in this perception.

The ESFJ pattern perceived more opportunities for another kind of position than did the ISFJ and the ISTJ patterns. The difference appeared to lie in the introversion dimension in contrast to the extraversion dimension. Another significant difference occurred between two preference-types which differed in only one dimension. The ISFP preference-type perceived more opportunities for alternative employment than the ISFJ pattern. It is not possible to state how valid these perceptions were - only that they occurred in responses made to the scale. The descriptions of the two preference-types are quite different, and it may be that the ISTJ preference-type identifies herself more closely with the school setting while the ISTP feels relatively little such identification.

Although it was not possible to test all the preference-types for significant differences, the evidence cited above for both males and females supports the hypothesis in question. The significant differences which occurred were generally consistent with one another. It then appears plausible that satisfaction within the profession bears some relation to preference-type, independent of all the other many variables which may be involved in addition.

Hypothesis #10

Teachers rated as effective differ significantly as a group in the distribution of personality types from those rated as less effective. The evidence for this hypothesis is presented in Table XXXIII for teachers in service and Table XXXIV for student practice teachers from the minimum

TABLE XXXIII
COMPARISON OF TEACHER PREFERENCE-TYPES
AND RATED EFFECTIVENESS

Type	N	Males		N	Females				
		More Effective Rating	Less Effective Rating		More Effective Rating	Less Effective Rating			
ESTJ	11	6.5	4.5	13.5	8	5.5			
ESTP	0	0	0	1.5	0	1.5			
ESFJ	5	2	3	22.5	10	12.5			
ESFP	1	0	1	5.5	2	3.5			
ISTJ	11	6.5	4.5	13	5.5	7.5			
ISTP	1.25	0	1.25	.5	0	.5			
ENTJ	4	3	1	9.5	7.5	2			
ENTP	2	1	1	0	0	0			
ISFJ	2	0	2	21.5	10.5	11			
ISFP	1.25	1	.25	5	4	1			
ENFJ	1	1	0	11	6	5			
ENFP	0	0	0	4	2	2			
INTJ	1	1	0	1	0	1			
INTP	1.25	1	.25	3.5	1.5	2			
INFJ	2	0	2	8.5	7	1.5			
INFP	2.25	2	.25	2.5	2	.5			
Tot.	46	25	21	123	66	57			
Comparison				N	Sex	Dimensions	d.f.	X ²	P
More Effectives vs. Less Effectives				25	m	Attitudes	2	.61	.75
				21	m	Functions	2	2.65	.30
More Effectives vs. Less Effectives				66	f	Attitudes	3	2.05	.60
				57	f	Functions	3	3.04	.40

TABLE XXXIV

COMPARISON OF STUDENT TEACHER PREFERENCE-TYPES
AND RATED EFFECTIVENESS

<u>Males</u>						<u>Females</u>			
N	Rating			Preference- Type	N	Rating			
	High	Med.	Low			High	Med.	Low	
14.5	1	8	5.5	ESTJ	20.5	3	12.5	5	
0	0	0	0	ESTP	3	1.5	1.5	0	
9.5	1	2	6.5	ESFJ	28	3	14	11	
1	0	0	1	ESFP	5.5	1	.5	4	
9	1	2.5	5.5	ISTJ	26.5	1.5	14.5	10.5	
2.5	1	1	.5	ISTP	2	.5	.5	1	
3	2	0	1	ENTJ	7	2	2.5	2.5	
4.5	1	2	1.5	ENTP	0	0	0	0	
9	3.5	1.5	4	ISFJ	19	3.5	12	3.5	
1	0	1	0	ISFP	2.5	0	1.5	1	
1	0	1	0	ENFJ	5	0	1.5	3.5	
3.5	0	2	1.5	ENFP	9.5	6.5	3	0	
7.5	1	4	2.5	INTJ	1.5	0	0	1.5	
0	0	0	0	INTP	1.5	0	0	1.5	
3	2.5	0	.5	INFJ	11	6	4	1	
2	1	0	1	INFP	2.5	1.5	0	1	
71	15	25	31	Totals	145	30	68	47	
Comparison				Sex	N	Dimensions	d.f.	X ²	P
High Ratees vs.				f	30	Attitudes	2	6.83	.03
Low Ratees				f	47	Functions	2	11.83	.01

program in education.

The superintendent of the school district involved in the study was requested to furnish a global rating of relative effectiveness of the teachers of his system. Where the original research design called for ratings on a six point scale, fears were expressed about the possible misuse of the ratings, and a compromise was agreed upon. Approximately half the males and half the females were "nominated" as more effective generally for their respective schools. This in effect created a two-point scale for comparison purposes. The sample of those rated as effective was too small to test the hypothesis on a preference-type basis, however, though this procedure would have been more desirable. No significant differences were found when the preference-types were grouped. A study of Table XXXIII shows that some preference-types, however, seemed to fare considerably better than others. In order to test the hypothesis adequately, a larger sample with ratings on a three-point scale as a minimum appears essential.

Significant results for female student teachers were found. The evidence is summarized in Table XXXIV. The three marks for student teaching during the academic year were averaged as a global rating of effectiveness. These average marks were then grouped as high, medium, and low ratings. Students with an average of 70 per cent or better were arbitrarily rated as high, while students with an average of less than 60 per cent were rated as low. These two groups were then compared by means of the paired attitudes and paired functions of the personality instrument. Differences in attitudes were significant at the .03 level,

and differences in functions were significant at the .01 level.

Extraversion-perception and intuition-feeling formed the largest positive cells in the two distributions, and indicated that the preference-types of which these dimensions are components tended to receive higher ratings at a significant level. It is interesting to note in this connection that the ENFP preference-type is modal for the females of the first year degree program.

An inspection of Table XXXIV reveals again that some preference-types seemed to fare better than others. The extent to which this may be significant awaits further investigation. As was the case with male teachers, male student teachers could not be tested for significant differences due to the heterogeneity and small size of the sample. Considering both the teacher sample population and the student teacher sample population, it seems striking that none of the modal preference-types, ESTJ for males and ESFJ for females, received more than an average amount of better ratings.

With respect to the ratings themselves, they are assumed to be composites of evaluations by a great many persons. Thus nothing can be assumed about their precise meaning, or whether or not the ratings tend to reflect the preference-type of the respective raters, or whether rated effectiveness is related to actual effectiveness.

In summary, tentative evidence has been submitted for female student teachers from the minimum program in education which supports the hypothesis in question. The remaining results were negative and inconclusive, but suggestive of further research.

Hypothesis #11

Teachers with the most years of training tend to be grouped among the personality types of those teachers rated as most successful. This hypothesis was tested according to the data presented in Table XXXV.

The nature of the distribution of years of training prevented the hypothesis from being tested in full as had been anticipated. In Table XXXV the amount of training was compared with rated effectiveness. Since the hypothesis was directional, a one-tailed test was used. Male teachers with more training were significantly more apt to be rated as more effective at the probability level of .05. Female teachers revealed the same trend, although the required level of significance was not attained. This was perhaps due to the fact that the majority of all female teachers in the sample population had only one year of training.

These findings, however, do nothing to shed light on the fact that a rather large proportion of teachers with relatively more training were not rated as more effective. It is evident that the amount of training as such is no guarantee of teaching effectiveness according to the ratings made. Other factors are assumed to bear on the situation which are not dealt with in this study.

In studying the distribution of teachers according to the number of years of training and preference-type, no pattern or tendency was evident for males or females, and thus no further testing of the hypothesis was possible.

TABLE XXXV

COMPARISON OF YEARS OF TRAINING AND RATED EFFECTIVENESS

Male Ratings	Yrs. of Trng.				Totals	d.f.	χ^2	P	$\frac{1}{2}P$
	1	2-3	4+						
More Effectives	4	5	16		25	2	4.62	.10	.05
Less Effectives	8	6	7		21				
Female Ratings	Yrs. of Trng.				Totals	d.f.	χ^2	P	$\frac{1}{2}P$
	1	2	3	4					
More Effectives	31	20	8	7	66	3	5.84	.20	.10
Less Effectives	39	10	4	4	57				

Hypothesis #12

Teachers with the most years of teaching experience tend to be grouped among the personality types of those teachers rated as most effective. No significant differences were found when this hypothesis was tested. No pattern or trend was evident when the teachers rated as more effective were classified by the number of years of experience and their preference-type. In Table XXXVI, teachers with varying amounts of experience were compared on the basis of rated effectiveness. Since this hypothesis was directional, a one-tailed test of significance was applied.

The results revealed no relationship between the number of years of experience and rated effectiveness. This finding is disturbing, and

TABLE XXXVI
COMPARISON OF YEARS OF TEACHING EXPERIENCE
AND RATED EFFECTIVENESS

Male Ratings	Years of Experience					Totals	d.f.	X ²	P	½P
	1-10	11-20	21+							
More Effectives	12	6	7			25	2	.18	.95	.48
Less Effectives	10	6	5			21				
Female Ratings	Years of Experience					Totals	d.f.	X ²	P	½P
	1-5	6-10	11-15	16-20	21+					
More Effectives	12	18	17	10	9	66	4	1.10	.90	.45
Less Effectives	13	14	17	6	7	57				

seems to indicate that a given teacher will likely be effective almost from the outset, or will tend to repeat one year of experience many times. Additional training, however, appears to be a partial solution to the problem, as noted in the discussion of the previous hypothesis.

The number of cases per cell was too small to permit analysis on the basis of preference-type in addition to the other two variables involved in this hypothesis.

CHAPTER VII

INTERPRETATION AND CONCLUSIONS

I. DIFFERENCES IN SELECTION FACTORS

Differences Among Male Samples

Students, teachers, principals, and superintendents have been shown to differ significantly in the distribution of preference-types from the distribution purported to be found in the general male population. While it may be said that anyone, i.e., any preference-type, may enter the field of education, it appears that a special male population is recruited in education which is consistently dominated numerically by relatively few preference-types.

Despite the relatively small size of the male sample populations, which accordingly would be expected to show considerable fluctuation in the distribution of preference-types, no significant differences were found when male students at three different levels of training were compared with male teachers in service. This important finding needs to be confirmed by further research, but it appears to show in a preliminary way that the males in the teaching profession or who are in training for the profession form a group that is surprisingly stable and consistent in the distribution of personality dimensions utilized in this study.

At the same time, there appear to be trends which may be examined by followup studies, especially with regard to dropouts. The perception

dimension appears to merit particular attention. Male students in the degree program are relatively strong numerically in this dimension, but this degree of strength is not found among students in the minimum program, nor among teachers, principals, or superintendents tested.

There are various possibilities which may relate to this phenomenon. It is possible that the sample populations of this study are not truly representative and that further study, using larger samples, would place the problem into a different perspective. It is equally possible that students and teachers with the perception dimension do not generally survive over a long period of time in a profession which seems to be dominated strongly in a numerical sense by teachers and administrators possessing the judgment dimension. The extent to which the dimension scores remain stable is not known at present, which opens up a third possibility.

A second trend is based upon the patterns of positive and negative cells in Table XXVII where all levels in education are compared simultaneously. This multiple comparison produced a significant difference between the various levels. Students in the minimum program seem to be a different group from either sample population of degree program students. All the student populations in turn show a pattern different from that of teachers in service. Principals seem to differ from teachers, and superintendents show their own unique pattern. As stated, these are trends only, and further research is necessary to establish the extent to which these apparent differences are actual and meaningful.

On the basis of his own work with an instrument similar to that

used in this study, Gray¹ correctly predicted the modal male teacher and superintendent preference-type, the ESTJ pattern. Together with three closely related preference-types - ISTJ, ESFJ, and ISFJ - more than half and up to two-thirds of all males in all the sample populations tested are accounted for. This seems to be a very significant normative finding, which, if confirmed by future studies, will enable one to secure a much clearer picture of what constitutes the male teaching force in terms of personality dimensions and their implications than is now the case.

The hypothesis that extraversion-judgment would predominate among educational administrators was confirmed by inspection of the test results. These dimensions appear to be related to an interest in people rather than with ideas primarily, and to organization and decision-making, all of which receive a great deal of emphasis in writings on the necessary qualifications of educational administrators.

A final observation is that in terms of personality structure the principalship seems to be the most homogeneous position in education of the levels tested in this study. Fewer preference-types were found in this sample population than at any other level, and more extremes in terms of positive and negative cells centered on this level than at any other. In contrast, there appeared to be greater heterogeneity among education students, teachers, and superintendents, perhaps because many more roles are associated with each of these levels.

¹Horace Gray, private communication, August 22, 1960.

Conclusions

(1) Of the seven hypotheses under investigation for this aspect of the study, four were clearly supported and the remaining three were supported in part. The study failed to show convincingly that teachers in service differed significantly from students in education. Educational administrators, when compared with teachers in service, did not differ significantly, but it was shown that not all teacher preference-types were characteristic of administrators. Finally, when all levels were compared simultaneously, no convincing evidence for a pyramid of personality types emerged, although significant differences were found.

The sample of superintendents appeared to be most out of the expected sequence of a reduced number of types as compared with the previous level of principals. This suggests that role definitions may be related to the number of preference-types which may be found at any given level. It further suggests that the theory of increasing selectivity at each successive level needs modification to allow for greater heterogeneity of preference-type distribution, and to recognize the possibility that low frequencies may occur between two higher frequencies in a succession of levels. This recognizes the possibility of latencies at various levels in the profession.

An additional possibility for interpretation of the data lies in the fact that the sample population of superintendents was drawn from all parts of Canada, while all other samples were drawn locally. A further possibility must also be considered. There was no provision made in the study to determine whether the principals and superintendents of the

samples were 'good' or 'effective.' It is possible that a highly select sample of educational administrators would exhibit a different distribution of preference-types.

(2) The results of this aspect of the study offer a basis for the study of male teacher and administrator characteristics which makes no assumption that there are characteristics common to all teachers or to all administrators. This approach appears to be worthy of consideration because the many studies of common characteristics have not been particularly fruitful. Each preference-type has its own strengths and weaknesses. These characteristics deserve considerable study, particularly those preference-types which have been shown tentatively to predominate numerically among the males at all levels in this study.

(3) The potential value of the Myers-Briggs Type Indicator for the study of the teaching force in education appears to be demonstrated. While it is difficult at the present time to speak of the validity of the instrument, students, teachers and others to whom the results were reported and interpreted by the investigator, ascribed a great deal of face validity to the findings. No adequate data exist at present on the reliability of the test instrument. The nature of the sample populations selected for this study, however, will make it possible to conduct a number of studies in the future on test-retest reliability. Such studies are essential if the instrument is used to investigate teacher characteristics further.

Larger samples would be highly desirable to test the power of the MBTI to discriminate on a preference-type basis with respect to various

hypotheses. Much of the present study was limited to an analysis of several dimensions of the test only, and this procedure is assumed to weaken the power of the test to discriminate.

Differences Among Female Samples

Female education students at three levels of training, and female teachers in service were all found to differ beyond the .001 level of significance from the distribution of preference-types found among the general female population. It appears to be true of females that special populations are recruited for the education profession, even though an individual of any one of the preference-types may be found within these special populations.

What may be of even greater significance, however, is that important differences were found within the female sample populations in education. The females in the minimum program differed significantly from the females of the same median age in the first year degree program. This suggests that two sets of standards for admission appear to attract two distinguishable populations, and that the higher set of standards may attract a superior student. If this is confirmed, it would have very important implications for the profession.

Another important finding is that female teachers, most of whom have but one year of university training, are not significantly different from the students in the present minimum one-year program at the university. These teachers do, however, differ significantly from the first year students in the degree program. Students in the upper level degree

program showed the same patterns as the first year degree program students, and this observation was supported by the sign test.

Students in the degree program were characterized more by the intuition and the perception dimensions, while students in the minimum program and teachers in service were numerically stronger in the sensation and judgment dimensions. The modal preference-type for the first year degree student was ENFP, while ESFJ was modal for all other levels. The small sample of upper level degree program students presented difficulties, since the ENFP modality was expected here. An examination of Table XVI, however, showed that this sample population was more like the first year degree program students than it was either to teachers or students in the minimum program, and this similarity was supported at a significant level by the sign test.

Conclusions

(1) Data were collected from only a few female administrators, and therefore three of the first seven hypotheses did not apply, and the seventh hypothesis applied only in part to this aspect of the study. The evidence presented supported the three hypotheses. Preliminary evidence gave some support to the pyramid hypothesis, but followup studies are required to confirm these findings. At present, only the fact that significant differences appeared between the various levels can be stated, and these differences may be related to the two sets of standards for admission to the university, and to a possible dropout factor.

(2) As in the case of the male sample populations, a large proportion of female subjects were of relatively few preference-types. The

strengths and weaknesses of these preference-types warrant close study as an approach to the study of female teacher characteristics.

(3) The major test instrument used in this study appears to have value for the further investigation of female education students and teachers in service. Further investigation is required to study the implications of the findings of this study, and followup studies on dropouts particularly seem to be warranted.

II. DIFFERENCES IN VARIABLES OF SIGNIFICANCE TO ADMINISTRATION

Differences Among Male Samples

With respect to variables of significance to educational administration, significant results supporting two of the five hypotheses were found.

Teacher satisfaction, as expressed on a given scale, was found to be related significantly to preference-type. Only two cell frequencies were large enough to permit statistical study of this hypothesis for male teachers. Compared with the ISTJ pattern, the ESTJ teacher expressed greater global satisfaction with his present teaching position, was more satisfied with the educational policies in his school, had less tendency to consider another kind of work in place of teaching, and felt less conformity pressure in his relationships with the administration of the school.

The extent to which actual satisfaction agrees with expressed satisfaction is unknown. There appeared to be no relationship between these findings above and rated global effectiveness of teaching. Introverts

did not differ significantly from extraverts in the proportion who were rated as more effective. If further investigation confirms the above findings, the factor of less satisfaction among introverts will be recognized by educational administrators as a more or less set response by a particular preference-type. No significant differences were found between the two types (ESTJ and ISTJ) in social satisfaction and alternative employment perception.

While no relationship was found between years of teaching experience and rated effectiveness, the number of years of university training was related significantly to rated effectiveness.

With regard to vocational choice differences related to preference-type, no significant differences were found. Students who expressed a preference for administration in the future rather than for teaching did not differ significantly in preference-type distribution. Those who preferred to teach a grade level rather than a single subject matter field could not be distinguished at a significant level. Preferences for teaching at the elementary or junior high school level contrasted with those who preferred to teach on the senior high school level showed no significant differences in preference-type distribution. Students who had changed from another vocation could not be distinguished from those who reported no vocational change. Mathematics and science majors appeared to be no different from students who had selected other majors when their preference-types were compared.

The test instrument also failed to establish a relationship between preference-type and effectiveness of teaching for both male student teachers

and teachers in service on the basis of ratings. However, some preference-types seemed to fare better than others, and further investigation with larger samples may establish some relationships which could point the way toward more selective recruitment.

Conclusions

(1) Despite the failure of the test instrument to produce significant results among male subjects for three of the five hypotheses of this aspect of the study, there may be reasons for this situation which would not necessarily detract from the power of the instrument to discriminate between different samples. While no differences may exist where none were found, the more striking results for the hypotheses with the larger female samples may point to design inadequacies and/or failure to secure large enough samples among the males.

Greater heterogeneity than anticipated was found among the males, which reduced the size of the cells to the point where adequate analysis was not always possible. Furthermore, the skewed distribution of responses to vocational choices was not anticipated to the degree it occurred, which in some cases also prevented adequate analysis. The end result was that cells had to be combined for analysis in a number of cases, which reduced the power of the test instrument to discriminate. The experiences encountered in this study, however, have the value of offering guidelines for more sophisticated designs in future research with the instrument.

(2) The significant relationship found between preference-type and expressed satisfaction in the profession appears to be an important finding. It appears then that the study of satisfaction in a school setting cannot

adequately be considered apart from the personality structure of those involved in the setting. While this approach seems to shed some light on the problem of satisfaction, it also makes this kind of study far more complex and difficult than when personality factors are not considered.

According to the evidence presented, persons of different preference-types in the same setting may react characteristically with various degrees of satisfaction and dissatisfaction. Predictions, however, were made only on a group basis. Ryans¹ states on the basis of his extensive work on teacher characteristics that "prediction of teacher behavior must be considered largely in the actuarial sense." Prediction of individual behavior does not appear to be warranted, since the degree to which experience modifies the expected characteristic behavior of a given preference-type is not known. It is important to note that no relationship between the degree of satisfaction and rated effectiveness was evident.

(3) The test instrument demonstrated powers of discrimination in a plausible manner, and further research with the instrument appears to be justified in the attempt to relate personality variables with variables of significance to educational administration.

Differences Among Female Samples

With the larger samples of females, some support at a significant

¹David Garriott Ryans, Characteristics of Teachers. Washington, D. C.: American Council on Education, 1960, p. 378.

level was found for four of the five hypotheses involved in this aspect of the study. For the remaining hypothesis, as was found among the male teachers tested, no relationship was found between the number of years of teaching experience and female teacher rated effectiveness.

The finding that various vocational choices bear a relationship to preference-type seems striking. Within the degree program it was possible to distinguish three subgroups of females who stated a preference respectively for elementary level, junior high school level, or senior high school level teaching. Each subgroup formed a different pattern of preference-type distributions, and this finding may have important implications in the future for vocational counseling and recruitment.

In a similar manner female degree program students who stated a preference for teaching a grade may be distinguished on the basis of preference-types as a group from those who preferred teaching a single subject. English and foreign language majors differed significantly from those who did not indicate an academic major. This seems to indicate that preference-type is a factor in choice of at least some academic majors.

Although the samples were small, upper level degree program females were shown to be significantly different as a group from a sample population of females who had chosen to major in the arts and sciences. This important finding needs to be confirmed by testing larger samples. The study failed to reveal any significant differences between primary level female teachers and those teaching other grades and individual subject

matter areas. This lack of differences, however, may have been due to the fact that a majority of all the teachers concerned had only one year of training.

The test instrument produced significant differences between preference-types and the degree of social satisfaction expressed, and the degree to which alternative employment opportunities were perceived.

No differences between effectiveness ratings and preference-types for female teachers were discovered. Methodological weaknesses may have reduced the power of the test instrument to discriminate, particularly by the use of a two-point scale of effectiveness rating. Among student practice teaching subjects in the minimum program, significant differences were found, which may have important implications in the field of education. Significantly higher ratings were given to student teachers who possessed the extraversion-perception and intuition-feeling dimensions.

Females with more academic training tended to receive a higher proportion of effectiveness ratings, a finding which is not surprising, but reassuring nevertheless. At the same time it was evident that additional training, like additional years of experience, was no guarantee that the teacher would be rated as effective.

Conclusions

(1) The test instrument revealed convincing powers of discrimination in this aspect of the study, and its potential for further research in education appears to have been demonstrated.

(2) The further study of preference-types as related to satisfaction

in the teaching profession seems to hold possibilities for shedding considerable light on the problems of interpersonal relationships among school staff members. It is assumed that a fuller knowledge of responses characteristic of certain preference-types would lead to greater mutual understanding and toleration for other viewpoints and styles of characteristic behavior.

(3) The power of the test instrument to make discriminations among various vocational choices seems to make an important contribution to the further development of vocational theory pioneered by Roe¹ and Super.²

(4) The tentatively established relationship between preference-type and effectiveness ratings in teaching by female students, despite the fact that many raters were involved, is a discovery of far reaching potential importance. It must be emphasized forcibly, however, that this is not a finding which may be applied to a given individual. It appears that subjects of any preference-type may be rated as effective, and subjects of apparently favored preference-types may be rated as ineffective. The potential value of the discovery, if substantiated by further research, appears to lie in selective recruitment.

(5) The fact that additional training tends to be related to ratings of effectiveness confirms present practice in the encouragement of additional training for teachers now in service.

¹Anne Roe, The Psychology of Occupations. New York: John Wiley & Sons, Inc., 1956.

²Donald E. Super and others, Vocational Development. New York: Columbia University, Teachers College, 1957.

III. IMPLICATIONS FOR THE FIELD OF EDUCATIONAL ADMINISTRATION

The present study was exploratory in nature, using an instrument hitherto untried in research in educational administration. Perhaps the most important implication of the entire study to educational administration is that new research possibilities of a promising nature have been opened up. Thus the basic criterion of the application of a theory to generate further research appears to have been met.

While in no sense of the word can the theory underlying this study be said to have been proved by this investigation, the promising results are an encouragement to continue work with the theory until such time that a better theory can be developed for testing. It appears that many problems of educational administration may be approached on the basis of the preference-types of the personnel involved in the situation. However, it has been emphasized earlier in the study that the sample populations upon which this study was based were admittedly not shown to be representative of larger populations. Therefore, all implications must be considered as tentative only.

The theory of role expectations versus role behavior seems to be particularly well suited to relate to preference-type concepts. A given role may be defined in terms of one or more preference-types as most suitable to meet the defined expectations. The role behavior of the incumbent would tend to reflect his actual preference-type. Conflict, if any, could be examined in terms of discrepancies between the two preference-types. Other factors involved would include age, sex, amount and

quality of training, experience, and other variables. Individual differences within the preference-types are recognized as an obvious fact, which reduces the degree to which prediction may be made.

Stress on interpersonal relationships for a given role thus might call for the extraversion and feeling dimensions; decision making appears to be related to the judgment dimension; a purely intellectual role may call for introversion, intuition, and thinking; a practical realist appears to be related to the sensation dimension. It seems apparent, from these descriptions of dimensions, that compromise is necessary. No one person is likely to have developed all the possible dimensions involved to an optimum degree.

The leadership dimensions of initiating structure and consideration also appear to be related to the various dimensions of the preference-types. Extraversion and feeling appear to be related to the consideration factor, while judgment, thinking, and possibly other dimensions appear to be associated with initiating structure. On this basis it is entirely plausible for one person to be high in consideration only, another to be high in initiating structure only, while a third could be high or low in both. On the basis of preference-type descriptions, these alternatives could be hypothesized and subjected to scientific investigation. The above discussion is not intended as explanation in any sense of the term. At best, the possibilities outlined are leads for future study.

Another implication for the field of educational administration is that the current study made no assumption that there are common characteristics of teachers or administrators. There seems to be sufficient reason

to continue this line of research in the field of educational administration.

The study confronts the educational administrator with the evidence that the teacher population appears to be extremely heterogeneous, and it would appear that it is no small task for the educational administrator to work effectively with teachers of the various preference-types. It appears to be more true than ever that procedures effective with one teacher may have the opposite effect on the next. At the same time, male and female teacher sample populations were shown to be dominated numerically by relatively few preference-types which may lighten the task, and which may afford a base for the study of teacher and administrator characteristics.

Some light on the persistent problem of placement seems to stem from the study, particularly where there are many applicants for a given position. If a role appears to call for certain characteristics over and above specified age, training, and experience requirements, it appears possible that the criteria for placement may be strengthened by giving some consideration to preference-type. Obviously, this procedure could work only on a cooperative basis initiated by persons seeking placement in situations which best suit their abilities, interests, and personality characteristics. Any arbitrary use of test results would very quickly result in systems being developed to fake test scores.

A final implication to educational administration is that the study of the preference-types and one's own test results appear to aid both in the better understanding of the self, and in broadening the zone of

toleration for other persons in their characteristic manner of behavior. This was the primary purpose of Jung in developing the theory. Recently, Jung¹ stated that his chief concern in developing the theory was "with individuals needing explanation of themselves and knowledge of their fellow-beings."

¹Carl Gustav Jung, private communication, April 8, 1960.

CHAPTER VIII

SUMMARY

The Problem and Hypotheses

The problem of this study was to analyze certain implications to educational administration of measurable patterns of personality as found among education students, teachers, and school administrators. Basic dimensions which purport to influence or organize behavior, according to Jung's theory of personality, formed the basis of a study of characteristics of selected sample populations from the field of education. The personality variables consisted of four attitudes: extraversion-introversion (E-I), and judgment-perception (J-P); and four functions: sensation-intuition (S-N), and thinking-feeling (T-F). The attempt was to see whether these variables, which purport to be of fundamental importance, were related to variables which have significance for administration.

Teacher and administrator recruitment and professional training programs have been handicapped by a lack of any valid basis for selection, other than on the basis of such obvious criteria and characteristics as intelligence, age, experience, academic achievement, and professed interest. As one important implication to administration, this study tested the theory that persons with certain personality patterns tended to enter the teaching profession, while persons of other personality patterns did not. The study attempted to show personality preference-type as an important factor of increasing selectivity within the teaching profession. Further,

the study sought clues to success in the teaching profession and in educational administration on the basis of this theory of personality by relating personality preference-type to selection factors, teacher satisfaction, vocational choices, rated effectiveness, and interpersonal relationships. The study was designed to fit into a theory of leadership which bridges a trait theory and a situationist theory by offering constructs which may apply to both.

The theory, derived principally from Jung and Spranger, employed a limited number of dimensions of personality and dealt only with normal characteristics of normal people. The theory assumed the presence of sixteen measurable preference-types among individuals based on the characteristic attitude toward the external world and on characteristic modes of perception and judgment. The variance within these preference-types was assumed to be less than the variance between types, and it was further assumed that these types tend to be enduring, hence of significance for study and prediction. Individuals are qualified for a number of occupations, and the tolerance within each occupation is wide enough to allow some variety of individuals in each occupation. Occupations vary in the degree of this tolerance. Thus some individuals are unsuited for certain occupations, but may be suited to others. The nature of the career pattern for the individual is determined by the individual's parental socio-economic level, mental ability, by the opportunities to which he is exposed, as well as by his own personality characteristics. The theory assumed no common characteristics of the teacher or the administrator. The theory holds that individuals with opposite characteristics

may choose the same occupation or profession, and each may be effective in his own way.

Twelve hypotheses were derived from the theory. The first seven were designed to test the theory for teacher and administrator selection, and the remaining five were developed to test the theory for other aspects significant to educational administration. The hypotheses were as follows:

(1) Students in education differ significantly in the distribution of personality types from the distribution of types found in the general population.

(2) Certain personality types are characteristic of teachers in service, as opposed to the distribution of personality types found in the general population.

(3) Certain personality types are characteristic of administrators, as opposed to the distribution of personality types found in the general population.

(4) Teachers in service differ significantly from students in education in the distribution of personality types.

(5) Administrators differ significantly from teachers in service in the distribution of personality types, that is, not all teacher types are characteristic of administrators.

(6) Administrators tend to cluster in the four personality patterns which have in common the extraversion and judgment dimensions.

(7) The five levels under consideration in this study: general population; students in education; teachers in service; principals; and superintendents, in that order, form a pyramid of personality types, each

level of which is reduced in the number of types from that of the preceding level.

(8) Teachers of different grade levels and subject matter fields, and students who choose different vocational alternatives differ significantly from other teachers and students respectively in the distribution of personality preference-types.

(9) Teacher satisfaction, as measured by the Teacher Satisfaction Questionnaire, is related significantly to personality type.

(10) Teachers rated as effective differ significantly as a group in the distribution of personality types from those rated as less effective.

(11) Teachers with the most years of training tend to be grouped among the personality types of those teachers rated as most effective.

(12) Teachers with the most years of teaching experience tend to be grouped among the personality types of those teachers rated as most effective.

Extremely little is known of the teacher and administrator population in education. While results thus far are conflicting, inconclusive, and confusing, no literature was found which appeared to discourage the execution of the design of the present study. Furthermore, though there are evident dangers in using a type approach, there seemed to be sufficient encouragement in the literature to proceed with the study as planned.

Instrumentation and Methodology

In order to secure the data necessary to test the hypotheses of the study, the following four instruments were used: (1) the Teacher Background

Information Questionnaire; (2) Teacher Satisfaction Questionnaire; (3) Education Student Questionnaire; and (4) the Myers-Briggs Type Indicator. The four scores of the latter instrument were the data against which the other variables of the study were tested by means of chi-square and simple analysis of variance.

The Teacher Background Information Questionnaire provided the necessary factual data for describing the sample population, and for providing the data for the variables of teaching experience, academic training, and present teaching assignment. The Teacher Satisfaction Questionnaire provided measures of the following variables:

- (1) Global Satisfaction - overall satisfaction with the teaching position.
- (2) Social Satisfaction - satisfaction with the social relationships existing among the teachers.
- (3) Policy Satisfaction - satisfaction with the educational policies of the school.
- (4) Occupational Satisfaction - satisfaction with teaching as an occupation as compared to non-teaching occupations which require the same subject matter training.
- (5) Alternative Employment Perception - the extent to which a teacher perceives non-teaching job opportunities to be available.
- (6) Conformity Pressure - the extent to which a teacher feels under pressure to conform to the educational policies of the school. Each of these rating scales consisted of graded statements, one of which was to be checked by the subject.

The Education Student Questionnaire was designed to secure data for variables which could be compared with the results of the personality tests.

The Sample

The sample of the study consisted of 1,084 education students, teachers, principals, and superintendents. Data for each sex were treated separately. The teacher sample consisted of the twelve staffs of the elementary and junior high schools of one suburban school district. Although median characteristics of the teachers in this study closely resembled medians for the teachers in the Province generally, no claim was made that this or any of the other samples of the study was representative of larger populations. The distribution of test scores and other variables involved in the study were of such a nature that not all data could be used for statistical analysis.

The students of the sample were selected from two levels in the degree program in education, and the entire class of students registered in a one-year minimum program in education. The principals and superintendents of the sample consisted of registrants at two leadership courses conducted in the Province, and the sample of principals was augmented by the twelve principals of the schools where teacher data were secured.

Results

All the samples of males differed significantly from the distribution of preference-types found in the general population. The three male

student samples did not differ significantly when compared with each other. When all male samples were compared, differences in attitudes (E-I, J-P) were found to be significant at the .001 level. It was found that male administrators tended to cluster in the four personality preference-types which have in common the extraversion and judgment dimensions, and that the extraversion-sensation-thinking-judgment preference-type (ESTJ) was modal at all levels.

Two preference-types among male teachers differed significantly in the expected direction in four scales of the satisfaction questionnaire: Global Satisfaction (.01 level), Policy Satisfaction (.05 level), Occupational Satisfaction (.02 level), and Conformity Pressure (.01 level). In each of these the extravert preference-type (ESTJ) expressed greater satisfaction than did the introvert preference-type (ISTJ). Effectiveness ratings of male teachers were related significantly to the amount of training at the .05 level of confidence.

Female education students at three levels of training, and female teachers in service were all found to differ from the distribution of preference-types found among the general female population beyond the .001 level of significance. Females in the one year minimum program differed significantly from females with the same median age in the first year degree program at the .001 level. Students in the one year program did not differ significantly from female teachers, most of whom also had one year of training, while first year degree program students differed from teachers in service in the attitudes at the .001 level of significance, and in the functions (S-N, T-F) at the .03 level of significance.

Female degree program subgroups who indicated a teaching preference for elementary, junior high school, or senior high school levels differed significantly in the distribution of preference-types from one another at the .01 level of confidence. Those who preferred grade level teaching to teaching specific subjects differed significantly at the .01 level. English and foreign language majors differed from students who had not selected a major at the .04 level, and upper level degree program females differed significantly from females majoring in the arts and sciences at the .05 level of confidence in the attitudes, and at the .01 level in the functions.

Among female teachers, certain preference-types were found to express significantly more social satisfaction than other preference-types at the .05 and .01 levels of confidence. Certain preference-types perceived more alternative employment possibilities than other types at significance levels of .02 and .01. Female student teachers from the minimum one year program who possessed the extraversion-perception and/or intuition-feeling dimensions of personality received significantly more effectiveness ratings than did students of other dimensions (.03 and .01 levels).

The tests of the twelve specific hypotheses for the sample populations showed significant relationships, at least in part, in eleven of them with either or both the male and the female samples. In the case of the twelfth hypothesis no relationship between years of teaching experience and rated effectiveness was found.

Conclusions

(1) Of the seven hypotheses having to do with selection factors among males, four were clearly supported, and the remaining three were supported in part. The study failed to show convincingly that teachers in service differed significantly from students in education. Educational administrators, when compared with teachers in service, did not differ significantly, but it was shown that not all teacher preference-types were characteristic of administrators. When all levels were compared simultaneously, significant differences were found, although no convincing evidence for a pyramid of personality types emerged. The sample of superintendents appeared to be most out of the expected sequence of a reduced number of types as compared with the previous level. This suggests that role definitions may be related to the number of preference-types which may be found at any given level. It further suggests that the theory of increasing selectivity at each successive level needs modification to allow for greater heterogeneity of preference-type distribution, and to recognize the possibility that low frequencies may occur between two higher frequencies in a succession of levels in education. This modification would recognize the possibility of latencies at various levels in the profession. This is plausible, since the number of persons is reduced at each successive level.

(2) The results of the study offer a basis for the study of male teacher and administrator characteristics which makes no assumption that there are characteristics common to all teachers or to all administrators. This approach appears to be worthy of consideration on the basis of the

findings of this study, and because the many studies of common characteristics have not been particularly fruitful. Each preference-type has its own strengths and weaknesses. These characteristics deserve considerable study, particularly those preference-types which have been shown tentatively to predominate numerically among the males at all levels. The further use of the personality instrument for the study of the male teaching force appears to be justified.

(3) The value of the Myers-Briggs Type Indicator for the study of the teacher population in education appears to be demonstrated. Followup studies appear to have potential value, and further work to establish the reliability and validity of the instrument are needed.

(4) Of the four hypotheses related to selection among females, all were supported and followup studies are desirable to confirm the findings. The test instrument used in this study appears to have value for the further investigation of the female teaching force.

(5) A large proportion of males and of females fall into relatively few preference-types. The strengths and weaknesses of these preference-types warrant close study and further research as an approach to the study of teacher characteristics.

(6) The significant relationships found between preference-type and satisfaction in the profession appear to be a very important finding. It appears then that the study of satisfaction in a school setting cannot be considered apart from the personality structure of those involved in the setting.

(7) The striking powers of discrimination of the test in matters

of vocational choices among females seem to make an important contribution to the further development of vocational theory. The inconclusive results for males may be due to inadequate size of samples, or it may be due to the fact that males are qualitatively different in these respects.

(8) The tentatively established relationship between preference-type and rated effectiveness of teaching by female students, despite the fact that many raters were involved, is a discovery of importance. The potential value of the discovery, if substantiated by further research, appears to lie in selective recruitment.

Implications for the Field of Educational Administration

(1) The present study was exploratory in nature, using an instrument hitherto untried in research in educational administration. Perhaps the most important implication of the entire study to educational administration is that new research possibilities of a promising nature have been opened up. Thus the basic criterion of the application of a theory to generate further research appears to have been met.

(2) The possibilities of linking preference-type concepts with various theories of educational administration and of leadership seem promising. These concepts appear to furnish a possible bridge between a situationist theory and a traits theory, because situations can be defined in terms of preference-type dimensions. Similarly, role expectations versus role behavior may be expressed in terms of preference-types, as well as such theories which center upon interpersonal relationships, and decision-making. The leadership dimensions of initiating

structure and consideration also appear to be related to the various dimensions of the preference-types. These proposed relationships are hypothetical in nature and invite specific research.

(3) The current study made no assumption that there are common characteristics of teachers or administrators. There seems to be ample reason to continue this line of research in educational administration. The educational administrator is confronted with the evidence that the teacher population appears to be extremely heterogeneous, and it would appear that it is no small task for the administrator to work effectively with teachers of the various preference-types. It appears to be more true than ever that procedures effective with one teacher may have the opposite effect on the next. At the same time, male and female teachers were shown to be dominated numerically by relatively few preference-types, which places the problem in a different perspective.

(4) Some light on the persistent problem of placement seems to stem from the study, particularly where there may be many applicants for a given position. If a role appears to call for certain characteristics over and above specified age, training, and experience requirements, it appears possible that the criteria for placement may be strengthened by giving some consideration to preference-type on a voluntary basis.

(5) A final implication to educational administration is that the study of the preference-types and one's own test results appears to aid both in the better understanding of the self, and in broadening the zone of toleration for other persons in their characteristic manner of behavior, which was Jung's original intention when he developed his theory of personality.

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A P P E N D I X E S

APPENDIX A

EDUCATION STUDENT AND TEACHER CHARACTERISTIC STUDY

These instruments are a part of a study of education student and teacher characteristics under the supervision of members of the Faculty of Graduate Studies, University of Alberta. These completed instruments will be analyzed by the person authorized to conduct this research and will not be viewed by any other individual. No reports of this study will reveal the identity of any student, teacher, or school, even by code number.

It is important that in completing these forms you have full confidence in our guarantee of anonymity for your responses. Frank expressions of feeling about items will be appreciated where they call for a judgment on your part.

I. TEACHER BACKGROUND INFORMATION QUESTIONNAIRE

- (1) School _____ (2) Name (by code number) _____
- (3) Birthdate _____ Age _____ (4) Sex: Male ____; Female _____
- (5) Total years of teaching experience including present year _____
- (6) Total number of schools in which you have held full-time positions including present school _____
- (7) Major subject (or grade) which you teach at the present time _____
- (8) Other subjects which you teach at present _____
(Leave #8 blank if you teach all or most subjects in one or more grades.)
- (9) Are you now teaching the subject in which you have the most academic preparation? Yes ____; No ____.
- (10) Name the teaching subject in which you have the most academic preparation: _____
- (11) Number of courses (undergraduate and graduate) in above subject: ____
- (12) Number of courses in Education (excluding Practice Teaching): _____
- (13) Name the institution in which you received your training. If more than one institution, name the one in which you received the largest part of it: _____ Total years of training: _____
- (14) List your own preference for grade level you would prefer to teach: elementary; junior high; senior high; college. CIRCLE ONE.
- (15) Would you prefer to teach all or most subjects in one grade, or concentrate on a single subject field? CIRCLE 'grade' OR 'subject.'
- (16) In your future professional work, would you prefer to spend the greater amount of your time in teaching or in administration? CIRCLE ONE.
- (17) Have you changed from another vocation to teaching? If so, from which vocation? _____
- (18) Name of the teaching credential you now hold: _____

II. TEACHER SATISFACTION QUESTIONNAIRE

- (1) Please check the one statement below which best indicates your satisfaction with your present teaching position in all of its aspects.
- ☐ It is difficult to imagine a more satisfactory teaching situation.
 - ☐ This teaching situation is one of the best that I know of.
 - ☐ I consider this among the better teaching situations.
 - ☐ This teaching situation is better than average.
 - ☐ This teaching situation is only slightly better than average.
 - ☐ I consider this among the poorer teaching situations.
- (2) Please check the one statement below which best indicates your satisfaction with the social relationships among the teachers.
- ☐ It is difficult to imagine a group with better social relationships.
 - ☐ Social relationships among the teachers are unusually good.
 - ☐ The group has better than average social relationships.
 - ☐ Social relationships are probably slightly above average.
 - ☐ This group is about normal for teachers in social relationships.
 - ☐ It would be much more pleasant if the social relationships were better.
- (3) To what extent are you satisfied with the educational policies followed in your school as compared to policies that you feel to be most desirable educationally? (Check one).
- ☐ The educational policies followed here are the best that I can imagine.
 - ☐ The educational policies followed here are unusually good.
 - ☐ In general the educational policies followed here are very good.
 - ☐ The educational policies followed here are good in general but a few should be improved.
 - ☐ Some of the educational policies followed here are undesirable although many are satisfactory.
 - ☐ I consider many of the educational policies here to be undesirable.
- (4) What would probably be your reaction if you were offered a non-teaching position at an increase in salary of \$500 per school year? Assume that the position being offered is one in which you would use your academic training and that, in general, your abilities would be well suited to the job. (Check one).
- ☐ I would take the job.
 - ☐ I would seriously consider it and might well decide to take it.
 - ☐ I would consider it but do not know whether or not I would decide to take it.
 - ☐ I would consider it but I would be unfavorably inclined from the outset.
 - ☐ I would not even make further inquiry about the job.

- (5) How plentiful do you feel employment opportunities are in non-teaching positions for persons of your sex with your particular subject-matter training? Consider only non-teaching jobs with salaries about the same as, or better than, teaching jobs. (Check one).

☐ There are so many opportunities of this type in my field that those teachers who are attracted have a wide choice.

☐ There are enough opportunities that a teacher in my field has little difficulty finding one.

☐ There are enough opportunities that one may be found in a reasonable length of time.

☐ There are few such opportunities for teachers in my field.

☐ Opportunities of this type are very scarce for teachers in my field.

- (6) In what manner does the administration in your school react when teachers express criticisms of the school's educational policies in faculty meetings? (Check one).

☐ The administration urges teachers to express such criticisms and warmly receives them.

☐ The administration encourages criticisms and receives them in a fair manner.

☐ Criticisms are accepted by the administration without prejudice to the teacher.

☐ Criticisms are listened to by the administration but sometimes in a rather cool manner.

☐ Criticisms are sometimes listened to by the administration but not very graciously.

☐ The administration does not like criticisms to be expressed and disregards them when they are made.

III. EDUCATION STUDENT QUESTIONNAIRE

Please give the following information in addition to the information requested on the test answer sheet.

Name _____ Birthdate _____ Age _____

Class designation, e.g., 1st year B. Ed., etc. _____

Sex: Male ____; Female ____.

- (1) List your own preference for grade level you would prefer to teach: elementary; junior high; senior high; college. CIRCLE ONE.
- (2) Would you prefer to teach all or most subjects in one grade, or concentrate on a single subject field? CIRCLE 'grade' OR 'subject.'
- (3) In your future professional work, would you prefer to spend the greater amount of your time in teaching or in administration? CIRCLE ONE.
- (4) What is your B. Ed. program Major? _____
- (5) Have you changed from another vocation to teaching? Yes ____; No ____
If so, from which vocation? _____

APPENDIX B

CONTRIBUTION MADE BY EACH PREFERENCE TO EACH TYPE

- ISTJ - I Depth and concentration. S Thoroughness and respect for detail. T Realism, analysis, logic, critical faculty. J Organization.
- ISTP - I Depth and concentration. S Realism and observation. T Capacity for analysis and logic. P Adaptability.
- ESTP - Ease with environment. S Observation, realism, enjoyment, reliance on experience. T Impersonality, with structural, mechanical and some analytical ability. P Adaptability.
- ESTJ - Ease with environment. S Practicality, observation, reliance on experience. T Logical, executive, decisive, critical, demands efficiency. J Organization.
- ISFJ - I Depth and concentration. S Thoroughness and respect for detail. F Sympathetic handling of people. J Organization.
- ISFP - I Depth and concentration. S Observation and attention to detail. F Capacity for devotion and sympathy. P Adaptability.
- ESFP - E Ease with environment. S Observation, realism, enjoyment, reliance on experience. F Sociability, no analytical powers. P Adaptability.
- ESFJ - E Ease with environment. S Reliance on experience, observation, no analysis. F Sympathetic awareness of people, grasp of group feeling. J Organization.
- INFJ - Depth and concentration. N Insight and penetration, originality, grasp of the complicated. F Sympathetic understanding and handling of people. J Organization.
- INFP - Depth and concentration. N Insight, ingenuity, grasp of the complicated. F Capacity for devotion and sympathy. P Adaptability.
- ENFP - Ease with environment. N Drive for projects, initiative, versatility, ingenuity, invention. F Enthusiasm, insight into people, persuasiveness, charm. P Adaptability.
- ENFJ - E Ease with environment. N Interest in possibilities, facility with language, insight. F Sympathetic awareness of people, grasp of group feeling. J Organization.
- INTJ - I Depth and concentration. N Insight and penetration, originality, grasp of the complicated. T Analysis, logic, impersonal critical faculty. J Organization.
- INTP - I Depth and concentration. N Insight, ingenuity, grasp of the complicated. T Capacity for analysis and logic. P Adaptability.
- ENTP - E Ease with environment. N Drive for projects, initiative, versatility, ingenuity, invention. T Objectivity, analysis, some executive ability. P Adaptability.
- ENTJ - E Ease with environment. N Awareness of possibilities, insight, ingenuity, bent for experiment. T Logical, executive, decisive, critical, demands efficiency. J Organization.

EMPLOYMENT ASPECTS OF PREFERENCE-TYPE

- INTROVERTS - Like quiet for concentration; Are more careful with details; Have trouble remembering names and faces; Don't mind working on one project for a long time uninterruptedly; Dislike telephone interruptions; Like to think before they act; Interested in the idea behind their job.
- EXTRAVERTS - Like variety and some distraction; Are faster, dislike complicated procedures; Are good at greeting people; Are impatient with long slow jobs; Often enjoy telephoning; Usually act quickly, sometimes without thinking; Interested in how other people do the job.
- INTUITIVES - Like solving new problems; Dislike doing the same thing over and over again; Enjoy learning a new skill more than using it; Work in bursts of energy powered by enthusiasm; Patient with complicated situations; Impatient with routine details; Follow their inspirations, good or bad.
- SENSING TYPES - Dislike problems unless there are standard ways to solve them; Don't mind routine; Enjoy using skills already acquired; Work more steadily; Impatient when there are too many complicated details to remember; Patient with routine details; Don't usually get inspired.
- FEELING TYPES - Very aware of other people and their feelings; Like to please people or help them; Like harmony - efficiency may be badly disturbed by office feuds; Decisions influenced by personal likes and wishes; Need occasional praise; Dislike telling people unpleasant things.
- THINKING TYPES - Not very interested in people's feelings. Relatively unemotional; May hurt people's feelings without knowing it; Like analysis - enjoy putting things into logical order; Make decisions impersonally, sometimes ignoring people's wishes; Need to be treated fairly; Able to reprimand people or fire them when necessary.
- PERCEPTIVES - Like to adapt to changing situations; Like to leave things free for alterations; May have trouble making decisions; May start too many projects and finish too few; May postpone unpleasant jobs.
- JUDGING TYPES - Like to plan their work and be able to get it finished on schedule; Like to get things settled and wrapped up; May decide things too quickly; May not like to interrupt one project for a more urgent one; May not notice new things which need to be done.

CHARACTERISTICS OF THE TYPES IN HIGH SCHOOL

Isabel Briggs Myers

- ISTP - Quiet, reserved, a sort of cool onlooker at life, observing and analyzing it with detached curiosity and unexpected flashes of original humor. Interested mainly in mechanics, in cars, in sports and in business. Exerts himself only as much as he considers actually necessary, even if he happens to be a star athlete.
- ISTJ - Serious, quiet, earns his success by earnest concentration and unhurried thoroughness. Logical and orderly in his work and dependable in all he does. Sees to it that everything he touches is well organized. Takes responsibility of his own accord. Makes up his own mind as to what should be accomplished and works toward it steadily, regardless of protests or distractions.
- ESTP - Matter-of-fact, doesn't worry or hurry, always has a good time. Likes mechanical things, cars and sports, with friends on the side. A little blunt and insensitive. Can take school or leave it. Won't bother to follow a wordy explanation, but comes alive when there is something real to be worked, handled or taken apart. Can do mathematics and technical subjects when he sees he will need it.
- ESTJ - Practical, realistic, matter-of-fact, with a natural head for business. Likes the mechanics of things. Not interested in subjects that he sees no actual use for, but can apply himself when necessary. Is good at organizing and running school activities, but sometimes rubs people the wrong way by ignoring their feelings and viewpoints.
- ISFP - Retiring, quietly friendly, sensitive, hates argument of any kind, is always too modest about his abilities. Has no wish to be a leader, but is a loyal, willing follower. Puts things off to the last minute and beyond. Never really drives himself about anything, because he enjoys the present moment and does not want it spoiled.
- ISFJ - Quiet, friendly, responsible and conscientious. Works devotedly to meet his obligations and serve his friends and school. Thorough and painstaking, accurate with figures, but needs time to master technical subjects, as reasoning is not his strong point. Patient with detail and routine. Loyal, considerate, concerned with how other people feel even when they are in the wrong.

- ESFP - Outgoing, easy-going, uncritical, friendly, very fond of a good time. Enjoys sports and making things, restless if he has to sit still. Knows what's happening and joins in helpfully. Literal-minded, tries to remember rather than to reason, is easily confused by theory. Has good common sense and practical ability, but is not at all interested in study for its own sake.
- ESFJ - Warm-hearted, talkative, popular, conscientious, interested in everyone, a born cooperator and active committee member. Has no capacity for analysis or abstract thinking, and so has trouble with technical subjects, but works hard to master the facts in a lesson and win approval. Works best with plenty of praise and encouragement. Always doing something nice for someone in a practical way.
- INTP - Quiet, reserved, brilliant in examinations, especially in theoretical or scientific subjects. Logical to the point of hair-splitting. Has no capacity for small talk and is uncomfortable at parties. Primarily interested in his studies and wouldn't care to be president of his class. Liked by his teachers for his scholarship and by the few fellow-students who get to know him for himself.
- INTJ - Has a very original mind and a great amount of drive which he uses only when it pleases him. In fields which appeal to his imagination he has a fine power to organize a job or piece of work and carry it through with or without the help of others. He is always sceptical, critical and independent, generally determined, and often stubborn. Can never be driven, seldom led.
- ENTP - Quick, ingenious, gifted in many lines, lively and stimulating company, alert and outspoken, argues for fun on either side of any question. Resourceful in solving new and challenging problems, but tends to neglect routine assignments as a boring waste of time. Turns to one new interest after another. Can always find excellent reasons for whatever he wants.
- ENTJ - Hearty, frank, able in studies and a leader in activities. Particularly good in anything requiring reasoning and intelligent talk, like debating or public speaking. Well-informed and keeps adding to his fund of knowledge. May be a bit too positive in matters where his experience has not yet caught up with his self-confidence.
- INFP - Particularly enthusiastic about books, reads or tells the parts he likes best to his friends. Interested and responsive in class, always attentive and quick to see what the teacher is leading up to. Has a warm, friendly personality but is not sociable just for the sake of sociability and seldom puts his mind on his possessions or physical surroundings.

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